

A STUDY OF THE EFFECTS OF THE AAA-AICPA DOCTORAL
FELLOWS AND VISITING SCHOLARS PROGRAM ON
ACCOUNTING STUDENTS AT PREDOMINANTLY
MINORITY INSTITUTIONS THAT ARE
PARTICIPATING IN THE PROGRAM

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in partial fulfillment of the requirements
for the Degree of
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December, 1979

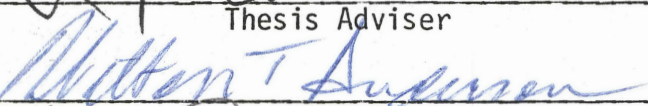
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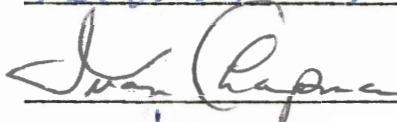


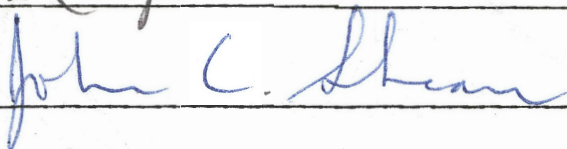
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ACKNOWLEDGMENTS

I wish to express my appreciation to my graduate advisory committee chairman, Dr. Lanny G. Chasteen, for his prompt and knowledgeable guidance throughout this study. Appreciation is expressed to the other committee members: Drs. Wilton T. Anderson, Ivan Chapman and John C. Shearer. My thanks also go to Dr. Elba F. Baskin who served on my committee during the initial phase of this study.

The experiment was made possible by the cooperation of administration and faculty of Grambling State University. My special thanks to all those who assisted me in this experiment.

I extend my thanks to Mrs. Barbara K. Scott for assistance in typing the earlier draft and Mrs. Sharon Hair for typing the final draft of this dissertation. Thanks go to Mrs. Iris McPherson for assistance in the preparation of the computer program for the statistical data of this experiment.

My sincere appreciation is extended to Dr. Wilton T. Anderson, Chairman of the Department of Accounting, for his kindness, encouragement and interest in my welfare during the time I spent in the doctoral program. Especially the candid way he always offered help when needed.

For financial support during various stages of my doctoral program, I thank Arthur Andersen and Company; Arthur Young and Company; and the American Accounting Association, American Institute of Certified Public

Accountants along with the United States Department of Health, Education and Welfare.

A special debt of gratitude goes to my family, especially my husband "Kennedy" for his unselfish support, love and encouragement throughout this doctoral program. Our daughter, Gloria and our sons Arlander, Amos, Jr., Alan, and Alvin are due special thanks.

To all others who assisted directly or indirectly in this experiment, I express my sincere appreciation.

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CHAPTER I

INTRODUCTION

Background Information

In the 1960's with the civil rights movement mushrooming, many Americans were exposed to the plight of minorities and their determination to achieve equality with their fellow white citizens. On March 1, 1968, the National Advisory Commission on Civil Disorders asked for help in alleviating the plight of the disadvantaged in the United States. At its annual conventions, the American Institute of Certified Public Accountants (AICPA) reacted in a positive way to the challenge. In October, 1968, Ralph Kent, the newly elected president of the organization, noted in his inaugural address that indeed the time had come for the CPA profession to integrate "in fact as well as in ideal" (91). Following this statement, he appointed the Committee on Minority Recruitment and Equal Opportunity and charged it with the responsibility to achieve this objective.

In July, 1975, the AAA and AICPA collaborated to initiate the AAA-AICPA Doctoral Fellows and Visiting Scholars Program dedicated to the advancement of accounting education at predominantly minority institutions. The primary objective of the program was to encourage more minority professors to enter doctoral programs in accounting. It was assumed that well-prepared professors could exert a positive influence

on education in these institutions. Earning a doctorate with an accounting emphasis likely would prepare professors to provide high quality instruction.

The program was administered by the AAA-AICPA Committee on Faculty Fellows and Visiting Scholars and was underwritten by the AAA, the AICPA and the Department of Health, Education and Welfare. Financial awards were made to applicants who entered doctoral programs with a concentration in accounting and who provided assurance that they would serve in a predominantly minority institution for a period of time equal to the period of the fellowship. The participating institution could receive supplementary funds to be used to obtain the services of a highly qualified scholar in order to enhance the teaching of accounting at the participating institution, while the doctoral fellow was earning the doctorate.

A total evaluation of the outcome of this program will require a longitudinal study since many of the expected benefits of the program may not become apparent in the short-run. Yet certain short-run benefits and costs of the program were examined and, thus, will provide input for longitudinal studies of the future.

In the education environment, attention is focused on the instructor and the students. Some have suggested that many elementary-level accounting students bring negative impressions about accounting into the classroom (13); this suggestion is an indication that there is a need to change these impressions and attempt to produce favorable attitudinal responses of students toward accounting. The participating institutions can meet this need by obtaining the services of visiting scholars who possess some of the qualities suggested by the AAA-AICPA

Committee on Faculty Fellows and Visiting Scholars (1) that:

. . . the visiting scholars will be active faculty members on leave from major universities with large departments able to spare their services, professionals on leave from public accounting firms, as well as retired professors and professionals (p. 1).

The visiting scholar can share years of experience and expertise with students and faculty, can provide an ongoing opportunity to discuss the needs of the profession, and can indicate the challenges that face young professionals and the requisites for success in the accounting profession.

This study focuses attention on the visiting scholars and the accounting students, realizing that instructors are among the "generalized other" that plays an important role in the formation of students' attitudes toward themselves and others (63). The question of concern in this research effort whether there were any spin-off benefits or costs of the AAA-AICPA Doctoral Fellows and Visiting Scholars Program accruing to accounting students taught by the Visiting Scholars Program.

Although the long-run goal of the program is to increase the number of Ph.D.'s among minority professors and presumably, improve instructional competency, certain potential short-run effects have been overlooked. For example, the AAA-AICPA program presumed that a visiting scholar will at least maintain or increase the competency level of students which would have been achieved had the minority fellow remained in his/her classroom. Yet, the visiting scholar as a result of his background and environment may perceive the minority students in accordance with stereotypes ascribed to minorities. If the visiting scholar takes this type of perception into the classroom he may be unable to deal with the minority students in the same manner as the minority fellow who may come

from similar socioeconomic environments as the students. Therefore, one question addressed by this study was whether competency levels are at least maintained. That is, rather than a short-run benefit produced by the visiting scholar, a short-run cost may have been introduced.

One might also suggest that the experience and background of the visiting scholar might produce attitudinal changes among students. Again the AAA-AICPA program implicitly assumed at least no change or, perhaps, a positive change in attitudes toward accounting. Therefore, the second question addressed was the impact of the AAA-AICPA program on the attitudes of students.

While the ultimate benefits of the program must be evaluated in the long-run, evidence can be gathered concerning short-run benefits or costs as measured by the competency and attitudinal dimensions. Thus, this study will assist in deciding whether the anticipated long-run benefits were reinforced by short-run benefits or whether these long-run benefits were offset by short-run costs.

Objectives of Study

The objectives of the study are:

1. To determine if differences in the levels of accounting achievement existed between students enrolled in accounting courses taught by a visiting scholar and students enrolled in courses taught by a regular professor of the predominantly minority institution that participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

2. To determine if differences in attitude occurred between students enrolled in courses taught by a visiting scholar and students enrolled in accounting courses taught by a regular professor of the predominantly minority institutions that participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

For future identification these objectives are labeled Objective I and Objective II.

Significance of Study

The study provides objective measures for use in evaluating the immediate effects of the AAA-AICPA Doctoral Fellows and Visiting Scholars Program. While the long-run effect of the program is to increase the number of minority professors with Ph.D.'s in accounting and presumably, improve the quality of accounting education at predominantly minority institutions, this study may be of value in making decisions about the program when it is considered for future funding by the AAA, the AICPA and the Department of Health, Education and Welfare. In addition, it could assist in identifying any short-run benefits or costs unanticipated in reaching the long-run goals of the program.

Prior to the AAA-AICPA Doctoral Fellows and Visiting Scholars Program, some changes had taken place in the accounting professions. Opportunities for minorities were increasing and the predominantly minority institutions were increasing the output of well trained accounting graduates. According to Gifford (33), the predominantly minority institutions have made noticeable improvement in their curricula, their institutional personnel, their ability to attract high level students

and have increased the outputs of well-qualified accounting graduates ready to join the staffs of accounting firms, corporations and government agencies. Mobley (67) reported that minority institutions are assuming a leading role in preparing accounting students for the increased opportunities in accounting. (These are two of the many published articles that present subjective beliefs of the authors, but these subjective beliefs must be validated against objective reality in order to provide useful information for future comparative studies.) Despite the fact that the accounting curriculum is well established in most colleges and universities, it is apparent that comparative studies of the accounting achievement levels of students are few. This study was the first effort to study the accounting achievement levels of students attending minority institutions. The results of this study will provide evidence to substantiate or evaluate some of these subjective beliefs.

Research Design

Null Hypotheses

In support of the objectives of this study, the following null hypotheses were tested:

- I. There is no significant difference between the mean performance in elementary accounting achievement of students who were taught by a visiting scholar and students who were taught by a regular professor of the minority institution that was participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

- II. There is no significant difference in attitude change on the two accounting concepts (accounting as a course and accounting as a profession) between students who were taught by a visiting scholar and students who were taught by a regular professor of the minority institution that was participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

The population for this study was students who were taking the second course in the elementary-level accounting sequence at Grambling State University, a predominantly minority institution that participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program, 1979-80. The study required the use of the quasi-experimental designs recommended by Campbell and Stanley (18)--the nonequivalent control design. There was a control group consisting of accounting students taught by a regular professor and an experimental group taught by a visiting scholar who participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program. In the nonequivalent control group design, both groups were pre- and post-tested. The groups were taken intact as they existed in the educational setting (79). Thus, the aspect of sampling equivalence prior to the experiment was missing.

Research Instruments

The research instrument used to measure the students' accounting achievement levels for the pre- and post-test was the American Institute of Certified Public Accounts' Achievement Test, Level I. The college testing program of the AICPA provides educators and counselors with four useful tools--an aptitude test, two levels of achievement tests, and a vocational interest test. The individual performance on the AICPA

Achievement Test, Level I, is an objective indication of the student's knowledge of accounting at the end of the first year of college accounting study. The test emphasizes understanding of financial and managerial concepts. Special permission was obtained from the AICPA Testing Project Office to use the achievement tests in the manner required by this study.

At the beginning of the semester both groups were given a pre-test, using the AICPA Achievement Test I. The same test was given to both groups at the end of the semester as a post-test. The difference in scores of each student between his/her pre- and post-test was considered to be the change in achievement in accounting which resulted from the semester of study.

Attitudinal data were obtained from each group, at the beginning and the end of the semester, by using two semantic differential questionnaires (74) constructed for this study to elicit feelings toward two accounting concepts: "accounting as a course" and "accounting as a profession." For each student the difference between his/her pre- and post-test scores was the measure of his/her attitude change with respect to each concept.

The Accounting Semantic Differential Questionnaires contain bipolar adjectives of evaluative dimensions (74). The adjective bipolar sets utilized to construct the questionnaires were selected from several sources: Osgood, Suci and Tannenbaum (74), DeCoster and Prater (26), Berry (13), and Amyz (5). The questionnaires were tested in a pilot study consisting of Oklahoma State University accounting students to determine its reliability before it was administered to the population of this study.

The semantic differential technique was developed by Osgood, Suci, and Tannenbaum (74) as part of their research on the objective measurement of meaning. A short introduction by the authors stated:

The semantic differential is essentially a combination of controlled association and scaling procedures. We provide the subject with a concept to be differentiated and a set of bipolar adjectival scales against which to do it, the only task being to indicate for each item (pairing of a concept with a scale), the direction of his association and its intensity on a seven-step scale (p. 24).

This type of questionnaire is a generalized approach to attitude determination as opposed to being a particular attitude test.

Analysis of Results

The statistical technique used to test the null hypotheses of Objective I and II were the t statistic and the analysis of covariance. A decision about the effectiveness of the two instructional situations was required for this study. For Objective I, two control variables, intellectual aptitude (ACT Composite raw scores) and previous scholastic performance (cumulative grade point average) for the research population were used. The dependent variable was the difference in the mean raw scores of the study population members' pre- and post-test raw scores as measured by the AICPA Achievement Test, Level I, G-S.

In addition, the analysis of covariance was used to determine whether there was a significant attitude change among the groups. The two control variables were the same as in Objective I, and the dependent variables were the difference in the mean raw score of the students' pre- and post-test scores on the two Accounting Semantic Differential Questionnaires constructed for the study.

Definitions Used in Study

ACT Composite Score: the average score made on the American College Testing program battery of test.

Achievement Level: the difference between the pre- and post-test scores as measured by the AICPA Achievement Test, Level A, G-S.

Attitude Change: the difference between the scores on the Accounting Semantic Differential Questionnaires administered to the accounting students as a pre- and post-test.

Control Group: the students enrolled in the second course of elementary accounting principles course taught by a regular professor.

Elementary-Level Accounting: the first two courses of basic accounting principles.

Experimental Group: the students enrolled in the second course of elementary accounting principles taught by a visiting scholar.

Regular Professor: a permanent instructor at the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

Visiting Scholar: a temporary replacement for the doctoral fellow at the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

Limitations of Study

To determine if differences existed in accounting achievement and course instructors, it was desirable to control any initial differences which might reflect on the students' performances on the achievement test. A student sample was employed that was an actual classroom

setting making it difficult to manipulate the students for experimental purposes. The research situation did not allow for matching, equating or random assignment of student groups on measures relating to the dependent variables.

This study required a multiple section course in Principles of Accounting II, with at least one section taught by the visiting scholar and one taught by the regular professor. Of the five minority institutions participating in the program, four of the visiting scholars taught upper level courses and only one taught a Principles of Accounting II course. This limited the study to students and faculty at one institution.

Another limitation was the experiment time-span. The study was not repeated over more than one semester since it was not known which institutions would participate in the program for a given semester.

Organization of Study

Chapter I includes the introduction, discussion of the problem, the objectives, the significance, the limitations and the organization of the study.

Chapter II contains a review of the appropriate literature which focused upon the general intellectual characteristics of measures of achievement and aptitudes of students, and specific studies pertaining to achievements in accounting courses.

Chapter III presents the design and methodology of the study. Included in this chapter is a description of the population, the research instrument and the statistical analysis used in the study.

Chapter IV reviews the statistical hypotheses, presents the results of the statistical analysis used, and an interpretation of the statistical analysis.

Chapter V summarizes the results of the study and contains suggestions for further research.

CHAPTER II

REVIEW OF LITERATURE

Introduction

While educational research has a long and prolific history with extensive and diverse literature (85,83), accounting application of educational research is limited. Education and the basic social sciences all have something to say about attitudes, achievements, learning, motivation and all the basic behavioral processes involved in teaching and learning. The accounting researcher engaged in educational research can rely on the large body of extant knowledge provided by the underlying disciplines for basic and general research.

A review of literature yielded little mention of published research dealing with studies pertaining to factors that influence and shape accounting achievement levels of students attending predominantly minority institutions. Nor has the review yielded any attitudinal data on students attending predominantly minority institutions. Thus, general studies were surveyed to determine any observable or measurable outcomes that would be useful to this research project.

The purpose of this review of literature is to focus on general studies in the areas of educational and social science research and additional cognate studies in the area of accounting education. These studies' methods, subjects or findings hold relevance to the

presentation and development of this research. These areas will be reviewed in the following sections:

1. Predominantly Minority Institutions and Their Students
2. Predominantly Minority Institutions and the Accounting Profession
3. Factors That Measure Students' Academic Growth, Aptitude, Accounting Achievement, and Attitudinal Tests and College Grades

Predominantly Minority Institutions and Their Students

Since this study involves students and faculty at a minority institution, the purpose of this section of the review of literature is to characterize minority institutions and their students.

Public Negro colleges have existed for more than a century, being founded in the decade following the Civil War. These colleges provided education for newly freed slaves (80, p. 1). The 33 institutions which exist today are located in 19 states, most of them southern or border states.

The publication, Public Negro Colleges: Fact Book (80), a reference guide to the nation's public Negro colleges and universities, provides both background information and current facts about a segment of American higher education. A summarization of the publication follows:

These 33 institutions have special significance because their traditional and continuing role in educating minority students for full and productive participation in American life. Today serving students of all races, the traditionally Negro public college enroll almost one-third of all black students in higher education, and more than three-fifths of all students in predominantly Negro senior colleges.

During the past century, the public Negro colleges have served as "opportunity colleges," providing education otherwise unavailable to thousands of able and deserving youths. Their alumni serve in a wide variety of responsible positions throughout the nation.

Like other public colleges, the traditionally Negro institutions have a strong commitment to service beyond the campus. These colleges work in many ways to better inter-racial understanding and community relations. They extend their resources to surrounding communities by providing technical assistance in a variety of fields, from teacher training to business management. They are involved, also, in various remedial education programs for people of all ages.

The achievements of public Negro colleges are especially remarkable because they have been carried out despite chronic shortages of funds and other resources. Until recently, these colleges received only minimal public and private attention and support (p. 1).

The Carnegie Commission highlighted several problems confronting traditionally black colleges and universities in the 1970's. Until a decade ago, the traditionally black colleges educated the majority of black students and employed the majority of black college professors. Recently, traditionally black colleges have had to compete with traditionally white colleges for students and faculty (19). In 1965, it was noted that predominantly black colleges enrolled less than three percent of all college students. However, these colleges enrolled over half of all blacks attending institutions of higher education (61).

The South accounted for 82 percent of the black students enrolled in predominantly black institutions in 1965. That number was reduced to 43 percent by 1976 according to data compiled by the Southern Regional Education Board (63, p. 2). The findings in two reports by the Education Board noted that predominantly black institutions have continued to be the major source of black four-year graduates; they awarded 69 percent of all bachelor's degrees received by blacks. Also,

the black institutions accounted for 46 percent of the graduate degrees that were granted blacks in 1976.

A comprehensive study of the black student in higher education was the subject of the Summer 1967 issue of the Journal of Negro Education. Thompson (92) presented a critique of the issue which focused on the need for adequate higher education opportunities for blacks. He stated that such opportunities could be provided by greatly improved predominantly black institutions and increased enrollment of blacks in predominantly white institutions of higher education. He stressed the urgency for each of the four-year predominantly black institutions to engage in self-study which would provide a long-range plan for the development of each institution.

One of the most striking facts regarding the students at predominantly black institutions is that many do not have the attributes which are associated with "success." In comparing black students attending predominantly black institutions with black students attending predominantly white institutions, black students attending predominantly black institutions had lower test scores, lower family income, more fathers who were manual or farm workers, and parents who had less education (11).

Why do these students persist in college with all odds seemingly against them? What causes such a high level of aspiration in these students? Pace (75) concluded that the reason may be due to a perception in the way which black students view their environment and themselves. Thus, their desire to succeed becomes a motivating force itself. Lang and Ashworth (52) suggested that for several generations predominantly minority institutions have represented the aspirations of blacks. In discussing students who attend predominantly minority colleges, the

publication Public Negro Colleges: A Fact Book (80, p. 6) concluded that these students show outstanding ability and desire to profit from higher education. They also show outstanding achievements with seemingly low ability based on their scores as prospective freshmen on standardized national aptitude test.

Hull (45, p. 12) stated that the black "atypical" student often has been only minimally prepared academically by his high school. Hence although admitted, there is a possibility that if the black "atypical" student does not receive some form of compensatory education he will be unable to meet the academic standards necessary to continue and graduate from college.

The Carnegie Commission Report urged that predominantly black colleges redefine their roles and function, not on the basis of past accomplishments, but for purposive actions in a decade that is likely to present new and different problems. The report further suggested that predominantly black colleges reshape themselves to render broader services to higher education (20).

Predominant Minority Institutions and the Accounting Profession

The purpose of this action is to emphasize the roles played by predominantly minority institutions and the accounting profession in increasing the number of minorities in the accounting profession. This section concurs with the primary objective of the AAA-AICPA Doctoral Fellows and Visiting Scholars Program which is the thrust of this research effort.

The AICPA Council (2) (the governing body of the AICPA), June, 1969

approved a resolution that stated:

Be it now resolved, that the Council of the AICPA urges:
(1) that a special campaign be undertaken to encourage young men and women of high potentials from disadvantaged groups to attend college and major in accounting; (2) that special efforts be made to provide educational opportunities for young men and women from disadvantaged groups so that they may enter the accounting profession without educational disadvantage; (3) that such men and women be hired by individuals and firms in order to integrate the accounting profession 'in fact as well as in ideal' (p. 12).

The Council struck down one of the barriers to entry into the accounting profession, the experience requirement for CPA candidates, by adopting the policy ". . . that CPA candidates who have completed five years of college study need not meet a qualifying experience requirement"(p. 15).

Prior to the 1960's, the traditionally black colleges and universities neglected the business area. During the 1960's, black educators added more sophisticated business courses to the curriculum. The awareness of this neglect was reflected in a survey by Mitchell (65), that dealt with the representation of blacks in the accounting profession. Fifty-two cooperating Certified Public Accountant (CPA) firms reported that out of a total of 27,481 professional employees, only 404 were from minority groups. This number included only 108 blacks. These firms stated that they had 3,139 partners, only one was black. The survey reported that there were more than 100,000 CPA's in the United States, only 136 were black. The lack of participation of blacks in the profession was attributed to several factors--two of which were (1) black college students were unaware of opportunities in the accounting profession, and (2) CPA firms were unable to find qualified black applicants. Mitchell felt that these factors were by-products of the fact that:

. . . colleges and not students, thought that there was no opportunity for blacks in accounting and predominantly minority colleges had been known to steer their students away from careers in accounting to the so-called 'Negro careers' (p. 46).

This observation by Mitchell was reinforced by a report in the Public Negro College - A Fact Book (80, p. 7), March, 1971, which stated that the largest share of degrees awarded by black colleges are in education.

There have been some changes in the distribution of degrees awarded by black colleges. In 1955-56, education accounted for 66.2 percent of all bachelors' degrees. In 1969-70, it accounted for only 34.8 percent. Meanwhile, degrees in the social sciences had risen from 10.6 percent in 1955-57, to 19.0 percent in 1969-70. Bachelors' degrees in business fields have increased from 3.4 percent in 1955-56, to 16.7 percent in 1969-70. Four predominantly black institutions each awarded more than 100 bachelors' degrees in business in June, 1970. Thirteen other institutions each awarded more than 50 degrees (80, p. 7).

Educators and businessmen alike recognized and respected the remarkable success story which was the tale of the accounting profession in the 1960's. The growth of the accounting profession in both the private and public sectors opened vast opportunities for young men and women seeking new and exciting careers.

In 1969, public accounting firms alone needed to recruit over 15,000 accounting graduates. But the total number of accounting graduates available for industry and government as well as public accounting was less than 17,000 (35).

As a partial solution to the manpower shortage in the accounting profession, it has turned to the predominantly minority institutions,

a new source of accounting recruits. The cooperation of traditionally black institutions was the key element in whatever success that the recruitment of blacks has achieved. These colleges and universities have labored mightily, almost always with inadequate personnel and resources, to provide meaningful career guidance and to improve their accounting programs, yet they produce the majority of all black accounting graduates.

The number of accounting graduates of these colleges has grown. At Florida A&M, there were only 12 such graduates in 1970; in 1975 there were 48. At Dillard University, the number of graduates increased from 11 to 29 in those years and at Norfolk State College from 19 to 30. At the largest of the traditionally black institutions, Southern University, the number of accounting graduates increased as follows: 9 in 1964; 13 in 1965; 19 in 1966; 29 in 1967; 29 in 1968; 54 in 1969; 57 in 1970; 83 in 1971; and 77 in 1972. The drop from 1971 to 1972 reflected the accounting department's decision to restrict the size of classes for fear that quality of education would suffer if expansion continued at such a rapid pace (34, p. 49).

Gifford (34) emphasized that the cooperation of the accounting profession with the predominantly minority institutions where accounting majors are offered has become a reality. Without the help of these black colleges the entire effort of the profession to bring about racial integration would have stagnated.

The Future of the Black Colleges is the subject of all fifteen articles in Daedalus for the Summer 1971, an issue of the quarterly journal of the American Academy of Arts and Sciences which was published with the assistance of the Ford Foundation. Holsendolph discussed the

same subject in his article "Black Colleges are Worth Saving" (Fortune, October 1971). Both the book and the article were reviewed by Ashworth in an article entitled "The Importance of Black Colleges to Accountants." According to Ashworth (9), both the book and the article have special significance in demonstrating why the accounting profession, along with others will benefit from continuing their cooperation with black institutions of higher learning. There is general agreement among writers that there is a future for black institutions and that it should be as bright as possible. Ashworth classified most of the discussion-- particularly the factors that affect the education of accounting majors-- under three headings: (1) environment, (2) finance and (3) special contributions to higher education.

1. Environment - The educational environment for blacks is such that it is believed that the black institutions will meet an important need for at least a decade. These institutions

. . . readily accessible to the majority of and an every-increasing number of blacks - for both geographical and financial reasons; because an expanding technological economy cannot afford to waste educable human resources; and because no other institutions can now do a comparable job in attracting, teaching and graduating black college students (9, p. 89).

2. Finance - The future of the black institutions looks bleak and there will be struggles. The financial squeeze brought about by mounting costs, inadequate support and a decline in enrollment makes it difficult for predominantly black institutions to meet specific and new educational demands, such as the current demand by public accounting, industry and government for more black accounting graduates. Many of the black colleges, which originated because of discrimination, have been geared by tradition to offer majors mainly in education and in

other nonbusiness subjects (9, p. 88). Financially, there is a need for industry, public accounting and federal agencies to cooperate with and assist the college departments from which they hope to recruit educated employees.

3. Special Contribution - In helping black students set their goals on professional careers including accounting, the predominantly black institution will continue their contributions to higher education for another decade.

Ashworth (9) concluded:

. . . that in sum all the experts from a variety of backgrounds who wrote The Future of the Black Colleges and also Mr. Holsendolph in his Fortune piece, make different estimates of the educational potentials of predominantly black institutions, but probably not more than one informed as to their existence. They will continue - they are the only institutions that are in the right place at the right time to do the specific job they are doing (p. 89).

The supply and demand in accounting for the future appeared to be bright, according to the letters to the editors of The Chronicle of Higher Education, January 8, 1979 (59) in response to Magarrell's article, MacNeil, Bryant, Fetyko, Wagoner and Williams were in agreement that the demand for accountants exceeded the supply (57). From studies by Williams (57) using data of the United States Department of Labor after adjusting the demand for accounting graduates for non-accounting positions, Table I reflects the relationship between supply and demand for accounting graduates.

With the demand for accountants greater than the supply, and considering the fact that the predominantly black institutions supply the larger proportion of black four year graduates (64, p. 2), there is still a need for cooperation between the accounting profession and black institutions for additional manpower.

TABLE I
SUPPLY AND DEMAND FOR ACCOUNTING GRADUATES

Year	Estimated Total Demand	Estimated Total Supply	Excess Demand
1977-78	56,000	52,600	3,400
1978-79	62,500	55,300	7,200
1979-80	63,000	57,400	5,600
1980-81	63,500	58,700	4,800

Source: The Chronicle of Higher Education, January 8, 1979, p. 25.

Factors That Pertain to Students' Academic Growth

This section of the review of literature will feature a combined review of studies that pertain to the independent relationship of specific factors to Objective I and Objective II of this research study. It will focus on Aptitude, Accounting Achievement, and Attitudinal Tests and College Grades and their predictive reliability.

Aptitude Tests

The purpose of this section is to examine the correlation, if any, between aptitude and ones' success in college. The term aptitude test has been traditionally employed to refer to tests measuring relatively homonogeneous and clearly defined segments of the ability of individuals (61).

Several standardized tests have been developed for use in the admission, placement, and counseling of college students. The pioneering program, the College Entrance Examination Board (CEEB) was initiated in the 1920's to reduce duplication in the examining of entering freshmen.

The Scholastic Aptitude Test (SAT) of CEEB is an example of an aptitude test (7). Several new forms of this test are prepared each year, a different form being employed in each administration. Separate scores are reported for the verbal and mathematical sections of the test.

Another nationwide program launched in 1959, was the American College Testing Program (ACT). This program is limited largely to state university systems. It includes four parts: English Usage, Mathematics Usage, Social Studies Reading, and Natural Sciences Reading. It overlaps traditional aptitude and achievement tests by focusing on the basic intellectual skills required for satisfactory performance in college.

In addition, high school students who are taking the ACT examination are required to report their last grade in the four areas. The Student Profile Section (SPS) of the ACT Assessment reports indepth information concerning the student's background, goals and aspirations, college plans, special educational and other needs, extracurricular activities, outstanding accomplishments, other high school information and predicted college grades. The four ACT test scores and the four high school grades have been established as good predictors of academic achievement in college (8).

Chase and Barritt (21) developed a table of concordance between

ACT and SAT. Reviewing the results of this study, Hoyt (44) concluded that, while there are many technical and practical reasons why SAT and ACT may never be considered as equivalent measures, it is usually possible to infer a student's standing on SAT from his standing on ACT.

A 1968 study sponsored by the Association of American Colleges reported on the value of ACT as a single predictor of college achievement. The 1965-1966 ACT scores from fifty-one colleges and universities were correlated with measures of intelligences, scholastic aptitude, English and reading achievement, high school rank and study habits. Munday (69, p. 75) concluded that "the degree of correlation with ACT is so high that it seemed doubtful that combining any of them with the ACT scores would improve prediction." Correlations of the ACT scores with other predictors included: Herman-Nelson Mental Ability Test, .63; Otis Mental Ability Test, .64; SAT Verbal, .55; SAT Mathematics, .49; SCAT, .75; high school record, .74. The high correlation between ACT and high school records indicates that high school grades can predict college achievement as well as most aptitude test scores or better. When aptitude test scores were combined with high school grades, the prediction of college performance was considerably improved (8).

Funches (31) found that the correlation between the ACT Composite score and the first-semester college grade-point average was .36. In addition, the degree of correlation between the ACT Composite score and the grade-point average of freshmen students at Jackson State College was above what is generally accepted as sufficient evidence of a positive degree of relationship.

Most colleges endorse academic achievement as an important objective. In fact, admission standards often require that some minimum

level be reached on measures of academic ability, e.g., ACT scores or high school grades. For many state colleges and universities, admission is generally open to all high school graduates of that state, thus eliminating the need to require a minimum level of academic ability. The policy of some colleges of requiring higher ACT scores and higher high school grades for admission, raises arguments against the use of such scores in this manner. The arguments are: (1) measures of academic ability are not perfectly valid, so that many students who could achieve average or above average grades would be eliminated, (2) academic achievement represents only one objective and, by selecting exclusively on this basis, a college would reject many students with unusual potential for other types of achievements. Because academic achievement and potential tend to be unrelated to many other criteria of educational success, selection on academic promise alone is equivalent to random selection on other types of potentials (41). Furthermore, college academic achievement when compared to other types of college achievements, were found to have little or no relationship to post-graduate success (43), and college achievement has been found to be related to number of personal characteristics that are nonintellective (56).

Accounting Achievement Tests

A search of the literature revealed that no extensive studies have been conducted relative to the performance of students in predominantly minority institutions of higher education on accounting achievement tests. The purpose of this section of the review of literature is to

elucidate findings of studies using various accounting achievement tests to measure student's performance in accounting.

The AICPA College Accounting Testing Program dates from 1943 and provides educators and counselors with four useful tools - an orientation test, two levels of achievement tests, and a vocational interest questionnaire. The orientation test is an accounting aptitude test and is recommended for use prior to the study of accounting. Achievement Test, Level I is appropriate for those who have completed one year of college accounting. Achievement Test, Level II is the equivalent of at least fifteen semester hours of college accounting including cost accounting. Tests are available in either the two-hour or the fifty-minute form. The Strong Vocational Interest Blank is a widely used interest questionnaire, scores are reported on a standard profile form that shows the pattern of an individual's interest.

Data have repeatedly shown a high degree of correlation between results on the AICPA Achievement Tests and various measures of academic achievement in college curricula.

Jacobs (46) reported correlations of the Orientation Test scores and accounting grades ranged from .31 to .55 with a median of .42. Correlation between Level I score and accounting grades range from .33 to .76 with a median of .56. Traxler (93) reported similar correlations between grades and Orientation Test scores and a median correlation of .60 between the Level I Test score and accounting grades. North (70) found a median correlation of .43 between Orientation Test scores and first-year accounting grades. When groups of one hundred or more are involved, correlations ranged from .56 to .66 between scores of Level I and Level II tests.

Morici (68) found a correlation of .51 between the Orientation Test scores and first-semester accounting grades. The correlation coefficient dropped to .46 between Orientation Test scores and second-semester grades and dropped to .27 between Orientation Test scores and grades in Intermediate Accounting. Morici concluded that the Orientation test is only effective in predicting aptitude in first-year accounting courses.

North (71) showed that the .57 correlation between Level I and Level II test scores for 178 students in 18 colleges was sufficiently high to warrant using the Level I Test to estimate the probability that a first-year student will reach a satisfactory level of achievement in accounting as measured by the Level II Test.

In a study conducted at Utah State University, McIff (62) found significant differences between successful and unsuccessful student performances on the following variables: aptitude and interest tests, student and course characteristics, study habits, personality factors and achievement in college.

A study by Sanders (82) compared a teaching technique developed by Price Waterhouse and a traditional lecture method of teaching. Two control groups and two experimental groups were administered the AICPA Achievement Test, Level I as a pre- and post-test. All of the evaluation procedures indicated that the experimental groups' achievement on the post-test was significantly higher than achievement of the control groups. In no case was the significance level even near the rejection rule of .05.

A study by Johnson (47) compared a computer-assisted method of teaching college level accounting as opposed to a lecture, discussion

method of teaching. The United States Armed Forces Institute Accounting Test Level I was administered to eighty-five college students to determine the affect of the two different methods of teaching Accounting I on their academic achievements and general attitudes toward the teaching methods used. The United States Armed Forces Institute Accounting Test Level I was administered to an experimental group and a control group on a pre- and post-test basis to determine the amount of achievement gain experienced under each condition. A student evaluation questionnaire was also administered to the students for them to express their attitudes towards the two teaching methods used in this study. The results showed that students taught by the traditional method performed better on the achievement test than did the students taught by the computer-assisted method. However, students' responses to the questionnaires on attitudes toward teaching methods led to the conclusion that the computer would be a very useful tool in teaching college level accounting.

A study by McCormick and Montgomery (60) was concerned with the utility of the results of the AICPA Achievement Tests in evaluating the achievement of students transferring into the upper division accounting program at Florida Atlantic University (FAU). Among these statistics were eleven correlation coefficients between Achievement Test results and grade-point averages on grades in accounting courses. A summary of data on the two short forms of the AICPA Level I Test and the two short forms of the AICPA Level II Test were recorded along with the intermediate accounting course grade and the final course grade in Auditing. Previous grade point average, FAU grade point average and test scores on the verbal Graduate Record Examination (GRE),

quantitative GRE, and School and College Ability Test (SCAT) Form UA verbal SCAT Form UA quantitative, reading comprehension - vocabulary, reading comprehension - level and reading comprehension - speed were reported. The statistical evidences from the data collected from September, 1969, through August, 1972, showed that there were eleven correlation coefficients between achievement test results and grade-point averages or grades in accounting courses. The correlations ranged from .11 to .67, with a median of .50. The lowest correlation was between the Level I test score and grades in a final accounting course, Auditing. Three of the four highest correlations were between grade-point averages and scores on Level I-ES test .59; Level II-G test .51; and Level II-K test .59. The authors concluded that "the AICPA Accounting Testing Program does make a worthwhile contribution to student counseling and to accounting curriculum evaluation programs."

Following the suggestion of McCormick and Montgomery, Buehlmann (16) conducted a study at Illinois State University using the AICPA Accounting Achievement Test to determine whether transfer students were as well qualified to succeed in intermediate level accounting study as were native students. He found that the .50 correlation between the Level I test score and the subsequent performance in intermediate account was sufficiently high to justify using the Level I test score as a basis for predicting success in intermediate accounting. The Level I test score was a useful tool because it was a strong predictor of success in intermediate accounting which facilitated the identification of both the transfer and nontransfer student with accounting ability for counseling about opportunities in the accounting profession. The test also identified students who might succeed in

intermediate accounting. These potential unsuccessful students could be given appropriate counseling for other fields of endeavor. A study by Buehlmann also showed that performance on the Level II test correlated with students' accounting grade-point average, adding strength to the usefulness of the AICPA Accounting Achievement Test as a predictor of performance of the student in accounting.

Krull's (51) research results indicated that native students scored significantly higher on the AICPA Accounting Achievement Test Level I, Form D-S than did transfer students at Michigan State University and Western Michigan University. Similarly, Groft (37) studied students enrolled in Intermediate Accounting I course at four colleges: Bloomsburg, Clarion, Shippenburg and West Chester and two universities: Pittsburgh and Pennsylvania State, in Pennsylvania. The research was conducted to compare elementary and intermediate accounting achievement of community college transfer students with the achievement of four-year college native students to determine differences in accounting achievements using the AICPA Accounting Achievement Test, Level I as a measurement instrument. Based on the findings, it was determined that there was no significant differences in the elementary and intermediate accounting achievement performance between native and transfer students in Pennsylvania's state colleges and universities.

Veazy and Kwon (94) computed twenty-four sets of correlations between scores on the Level I test and course grades in accounting singly and in combination. Twenty-two of the twenty-four correlation coefficients fell between .33 and .59 with a median of .43. The most consistently high of the correlations occurred with upper division grade-point averages at graduation.

Barron (10) evaluated the effectiveness of selected teaching methods on elementary accounting students. The specific areas evaluated were achievement gains as measured by the AICPA Level I Achievement Test and attitudes toward accounting as measured by a teacher constructed questionnaire. In a comparison of achievement gain among groups, a significant difference was evident between the experimental and other study groups. The visual aids supplemental groups were more positively impressed with accounting than the standard lecture group.

Predictive studies show that scores received on the AICPA Level I tests have validity coefficients with intermediate-level accounting course grades falling within the range of .33 to .76 with medians in the .50's. Multiple-correlations using such factors as achievement test and behavioral attributes may give higher validity correlations. Most research shows validity coefficients have median values of about .40 (28, p. 247).

Attitudinal Test

In practice, most classroom teaching is concentrated on the realization of cognitive objectives. It is assumed that students will acquire relevant affective behavior as a result of cognitive learning. The belief that a student develops positive attitudes toward subject matter, school, education, teacher, and others just by coming to college and interacting with curricular materials, other students and the teacher is an untenable assumption (50). The purpose of this section is to review those studies dealing with factors that shape student attitudes.

As a research construct, attitudes have occupied a central place

in the domain of sociology and social psychology. An impressive body of theoretical and empirical literature has been accumulated in these disciplines. Much of the discussion has been concerned with theories and research on attitude formation. Feldman and Newcomb (29) stressed high group interaction with groups that support certain attitudes as critically important to student attitude formation. They stated that characteristics which impel a person toward a particular educational setting are the characteristics which are reinforced and strengthened by that setting. Processes of attraction are similar to processes of impact. They further suggested that the process could be delimiting--if colleges, departmental majors, and peer groups apply restrictive criteria of selection, the student's world would be narrowed to students and teachers like himself.

Clearly the impact of college on attitudes of students is not simple or clear-cut, there has been little evidence that any one factor explains changes in attitudes. Most research on this subject indicates that college students change in some areas, very little is known about how and why.

In relation to the study at hand, the review of literature reveals that several attempts have been made to elicit student attitudes toward accounting. Most of the opinions and attitudes of accounting students have been reported as a secondary purpose of accounting research. There seem to be few accounting studies devoted solely to elicit student attitudes regarding particular aspects of accounting.

A study that concentrated on the formation of student attitudes about managerial accounting was conducted by Buehlmann (17). A modified version of an unpublished questionnaire by Green and Becker (36) was

used to measure the diversity of the students' attitudes about Management Accounting and its role in the organization. The questionnaire was used as a pre- and post-test to measure changes in students' attitudes toward management accounting. The thirteen questions were classified into six categories for analyzing. Buehlmann stated that Illinois State University students exhibited a substantial positive shift in opinion about managerial accounting after completing the course.

Harris (38) analyzed the responses of 38 partners, and 64 managers and 31 seniors in national CPA firms and 119 accounting students on the California Psychological Inventory test. All the subjects were male. The partners' scores on 18 scales were compared with the scores of the accounting students, seniors and managers. The 18 scales of the test pertained to personality characteristics important for social living and social interaction. When partners' scores were compared with scores of accounting students, the accounting students were "deficient" in social presence, sense of well being, responsibility, socialization, self-control, tolerance, good impression, communality, achievement via independence, psychology mindedness and femininity. It was suggested that post-college factors, such as age, maturity and work experience may have an influence on the personality development of professional accountants. This tends to support the need for an evaluation of a student's nonintellective traits along with an evaluation of intelligence, aptitude and technical competencies.

College Grades

The purpose of this section of the review of literature is to present the results of studies that were conducted to determine the

relationship between grades and academic achievement. The usual standard of measure of success in any formal academic study is the course grade. Although course grades are not as reliable as desired, the published studies using grades as a standard assume that they are acceptable in predicting academic success. Holland and Austin (41) found that the best predictor of academic achievement in college was high school grade-point average. This tends to be in agreement with a previous study by Cosand (24) who contended that college success in terms of high school success has shown a consistent correlation of .50 to .65 in various studies reviewed. These correlations indicate that the average high school grade is the best single criterion for predicting success in college.

Schroeder and Sledge (84) reviewed 60 studies completed since 1950 and concluded that grades in specific high school courses seemed to correlate more highly with similar college course grades than over-all college grades. In addition to a high correlation between high school grades and first semester college grade-point average, Fricke (30) found that the correlation between first-semester college grade-point average and second-semester college grade-point was usually .80.

Royer (81) used three classifications of factors to determine which of these factors was highly related to achievement in accounting. These factors were: ability, test scores, personal factors concerning the students and personality traits of the students. The findings were ranked in the order of importance in relation to achievement in first-semester accounting: Arithmetic Test score, composite score of personal factors, ACE Quantitative score, composite score of personality traits, and ACE Linguistic score. When the regression developed from the

multiple correlation analysis was applied to a subsequent set of students, prediction of achievement in first-semester accounting was accurate within one letter mark for approximately two-thirds of the group.

Larson (53) reported that elementary accounting course grades were predicted with slightly greater accuracy from past school records than from freshman placement test scores. The criterion for success was the grade earned by students in the elementary accounting course the first time. This grade was found to have high predictive power in determining which student would complete accounting courses required for graduation.

The findings of a study by Peterson (78) suggested that the best single predictor of grades in the first course of accounting at the University of Minnesota was grade-point average. Students who did well in first course of accounting usually showed a prior interest in the accounting field as a profession, which could be interpreted as an indication that prior attitudes toward vocations and professions affect achievement in accounting.

Using students at Kansas State, Laughlin, Gentry, and May (54) studied the effectiveness of a self-paced, audio-visual approach as compared to the more traditional approach to teaching elementary accounting. The results showed that there was no significant differences between students' performances in audio-visual sections and performances in the traditional section; and that the students' past performance, as measured by GPA's were correlated more highly to the students' performance in the audio-visual sections than in the traditional section.

In another comparative study of different methods for teaching

accounting, Benis, Brody and Johnson (12) demonstrated the application of small group models of teaching to traditional model of teaching. The results appeared to refute the efficacy of efforts to use non-traditional teaching methodologies. In classes with reasonably similar knowledge and grades no significant differences were shown in test results, although they were taught using a different teaching methodology.

Pawliczek (77) focused his study on the relationship between two different grading plans on student performance in an elementary accounting course. Two sections of students were taught in the same manner; however, their examinations and homework were scored by two different grading plans, a no-partial-credit plan and a partial-credit plan. After six weeks, the performance of the two groups were compared. Data analysis revealed that the group that received no-partial-credit grading performed significantly better than the group that received partial-credit grading. When both groups were graded using the no-partial credit rules, the group originally graded with the partial-credit recovered.

Grade-point average as a measure of academic success has many weaknesses, however it is still the only measure that is used to determine eligibility for continuing enrollment at most institutions of higher education (58).

Previous grades remain the predominant variable for predicting future academic success. Trends showed that investigators are moving away from the old model of predicting intellectual criterion such as grades from intellectual predictors and are displaying an interest in nonintellectual predictors or correlates of grades such as self-ratings

of achievement potentials. Heist and Webster (40) presented data to illustrate that attitudes, values, and interest of the students should not be overlooked as supplements to the more traditional selective criteria. Lavin (55), however, analyzed studies to determine the validity of ability, personality, and sociological variables as predictors of grade-point average. None of these accounted for the variance in grade point averages.

Critics of competitive grading systems contended that students will learn more when the deleterious effects of competitive grading are reduced or eliminated and that encouraging learning through grades as incentives is contrary to the contemporary educational philosophy which says a student should study because he is interested in learning, not the grade (22).

Summary

In summary, it appears that specific studies involving the achievements and attitudes of accounting students attending predominantly minority institutions are nil. Research dealing with the effect on college performance for such factors as attitudes toward education, aspirations and motivations, which the minority students bring to college has been minimal. However, from the studies which have been reviewed, it can be concluded that intellectives and nonintellective factors determine, to some extent, the student's success in college.

Most accounting educational research has involved specific pedagogical techniques or aids for independent classroom studies, to determine the effect that these techniques have on the academic achievement and attitudes of accounting students. For the most part, accounting

education studies reported a lack of significant improvements in students' performance and attitudes.

Very few of the studies in accounting education have attempted to determine the students' attitudes. Most of the studies had the determination of attitudes as a secondary purpose.

In this review of literature most of the studies did not include students attending predominantly minority institutions as a factor under consideration. Since this variable is unknown in these studies, we can only assume the representation of students from all ethnic groups was included.

In view of the increased opportunities provided in the accounting profession and the limited supply of qualified blacks available to take advantage of these opportunities, further accounting research using data pertinent to students who are attending predominantly minority institutions could fill this void in accounting education literature.

The next chapter presents the results and interpretations of the statistical analysis used to test the statistical null hypothesis of this study.

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

The purpose of this chapter is to describe the study population, the research instruments, and the statistical methods used to test the hypotheses of the study.

The Study Population

The population for this study was taken from students enrolled in the second course of the elementary-level accounting sequence, Accounting 201 at Grambling State University (GSU). Grambling State University is a predominantly minority institution located in Grambling, Louisiana. It participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program in the 1978-79 academic year. The control group consisted of 43 students enrolled in the two o'clock section which met on Monday and Wednesday. This section was taught by a regular professor of GSU. The experimental group was taught by the visiting scholar. It met at ten o'clock on Monday and Wednesday and consisted of 58 students. The classes met twice weekly for 100 minutes each period. The instructor had an option to lecture the entire period, or lecture 50 minutes and utilize the other 50 minutes for laboratory sessions to assist students on an individual basis.

Students were allowed to enroll in the section of their preference. The forty-three (43) students in the control group and the fifty-eight (58) students in the experimental group comprised the study population. This method of selecting students did not provide for randomization, but as Popham (79) indicated it is often necessary to experiment with "intact" groups as they exist in the educational setting. Thus, the aspect of sampling equivalence prior to the experiment was missing.

Research Instruments

The research instrument used to measure the students' accounting levels was the American Institute of Certified Public Accountants' Achievement Test, Level I, G-S. The attitudinal data was obtained from each group by using semantics differential questionnaires (74) constructed for this study to measure the students' attitude toward accounting as a course and accounting as a profession.

Accounting Achievement Test

The difference between the pre-test and post-test on the AICPA Achievement Test, Level I was used to measure the achievement levels of the students for this study. Permission was granted by Dr. Anne K. Stauffer, Ph.D. (88), Research Associate of the Professional Examinations Division, of the Psychological Corporation (88), to use the AICPA Achievement Test, Level I, Form G-S, in the manner proposed for this research. This section describes the nature of the AICPA Achievement Test Level I, Form G-S (the updated 50 minutes test previously Form E-S and F-S).

During the thirty-one (31) years that the AICPA Achievement Tests have been used by educators and employers, published studies have attested their validity and reliability. The latter terms are common in educational measurement theory; validity determines whether a test measures what is designed to measure and reliability determines the consistency of the measures. An early article by Anderson (7, p. 87) provided a still applicable description of the AICPA Achievement Tests and their use. The tests are "designed to measure knowledge of Accounting principles and procedures."

Achievement Test, Level I, Form G-S is a 50-minute, 45-item multiple choice examination; and is appropriate for those who have had the equivalent of one year of college accounting. The Level I Tests emphasize understanding of financial and managerial concepts as presented in accounting courses (4).

The results of the achievement tests are used in student evaluation, self evaluation, employee selection, counseling, and placement services since they permit one to compare each individual's mastery of accounting principles and procedures with that of other individuals who have comparable backgrounds and experiences, regardless of school attended or the grades received.

Studies have repeatedly shown empirical evidence of reliability and validity as noted in the review of literature section of this study.

The AICPA's Testing Project Office in association with The Psychological Corporation, a professional testing service, provide a complete service to colleges, universities and business schools which participate in the program. The regular reports include frequency

distribution of scores, medians and quartiles of the distributions and alphabetical class lists showing scores and percentile rating of individual students (4).

The AICPA's Committee on Personnel Testing publishes an annual bulletin summarizing the results of the previous year's testing program. In 1976-77, 19,565 Level I Achievement tests were given by 312 colleges and universities (3).

The College Testing Program, now in its thirty-first year of continuous services states that:

. . . the battery of tests offered has been continuously revised and updated to keep content relevant to the curriculum coverage of accounting educators and abreast of current needs in the practice of professional accounting (8, p. 4).

In regard to the validity and reliability of the Achievement Test, Level I, and Level II the AICPA Testing Project Office is continuously engaged in studies of the effectiveness of its accounting testing program. The Achievement Tests of the College Testing Program showed a high degree of validity as predictors of accounting course grades and accounting grade-point averages in a study by Katzell (48). The study presented validation data derived from an analyses of AICPA Achievement Test results relative to course grades and grade-point averages provided by nine colleges and universities. The results of the tests could be classified as criterion-related validity, that is to say, the tests were administered just before the end of the terms from which the final grades for the course served as criteria, thus the results can be considered to be either predictive or concurrent validity studies. Predictive validity is determined by, and only by, the degree of correspondence between two measures involved. If the correlation is "high"

no other standards are necessary (28, p. 247). In reviewing the validity coefficients, one must recall that a higher correlation coefficient is required for statistical significance to be attained with a small group than with a large group. Most research shows validity coefficients have a median of about .50 (28, p. 250).

Of the forty-three coefficients reported by Katzell, between course grades or grade-point averages and AICPA Achievement Test scores only three failed to reach the statistically significant levels and those were based on a small number of students. The correlations ranged from a low of .26 to a high of .83 with a median of .58. Correlations were higher with grade-point averages than with individuals' course grades. When the results were isolated to show the validity-coefficients of Level I Achievement Tests (Forms ES and FS-50 minutes) from two institutions relative to grades in accounting, Katzell found that the correlation coefficients ranged from .41 to a high of .71. These correlations were found to be significant at the one percent level.

It should be noted that validity correlations reported in the above study were positive, just as in the studies reviewed in the previous chapter. The high degree of validity observed in different institutions, with different forms of tests and different courses in accounting gives further assurance of the quality of the AICPA Achievement Test.

The Semantic Differential Method of Attitude Measurement

Since attitude change was the secondary objective for consideration

in this study, an instrument was needed to measure student attitude toward accounting within the framework of the objectives of this study. The semantic differential technique was chosen, often reviewing several attitudinal instruments.

The semantics differential technique was originally developed by Osgood, Suci, and Tannenbaum (74) as a part of their study of meaning. The semantic differential as a technique was not developed out of reasoning, but was developed as a measurement procedure more or less "Topsy-like" in the course of experimental research during the fifties (74, p. 20). The semantic differential consists of two basic components: first, concepts expressed as words or phrases that suggest different aspects of the field to be measured and, second, scales expressed as bipolar pairs of words against which the subject is to rate the concept suggested. These important aspects will be discussed in the following paragraphs.

Tannenbaum (89) supported the use of the semantic differential as a novel technique to secure a favorable or unfavorable assertion about a particular object or concept from an individual, as a measure of attitude.

Osgood, Suci and Tannenbaum (74, p. 20) considered semantic differential to be a combination of controlled association and scaling procedures. The individual is provided with a "concept" which in a general sense refers to the "stimulus" to be differentiated and a set of bipolar adjectival scales against which to do it. The individual being tested rates the concept on each scale. Each scale has a seven-point rating continuum used for each pair of bipolar adjectives. An example of the numbering techniques used on Form II of the semantic

differential instrument by Osgood, Suci and Tannenbaum (74, p. 28)

follows:

Polar term X $\frac{\quad}{1}$: $\frac{\quad}{2}$: $\frac{\quad}{3}$: $\frac{\quad}{4}$: $\frac{\quad}{5}$: $\frac{\quad}{6}$: $\frac{\quad}{7}$ Polar term Y.

For scoring purposes, the seven positions were weighted from seven to one. The presentation of some of the scales must be reversed because the locations of the favorable terms on the questionnaire is randomized to control bias due to response set. When this method of scoring is used, the sum of all ratings for all sets of scales for any one concept determines the attitude score.

According to Shaw and Wright (86), Osgood and associates originally used factor analysis to uncover several dimensions within the semantic space. The three general factors of meaning are described as: (1) evaluative, defined by scales such as: good-bad, valuable-worthless, and pleasant-unpleasant; (2) potency, defined as scales using strong-weak, large-small, and rugged-delicate; (3) activity, defined as scales involving such terms as: active-passive, fast-slow, and sharp-dull. The relative weights of these factors have been fairly consistent; evaluative factors accounting for approximately double the total weights of any subsequent factors (74, p. 36).

Osgood, Suci and Tannenbaum (74, p. 189) assumed that semantic differential may be used as a generalized attitude measurement technique. There seems to be much evidence that the semantic differential is a valid and interesting technique with which to work.

Kerlinger (19, p. 580) pointed out that the semantic differential technique is a useful and sensitive tool to help in the exploration of the area of psychological and educational concern: connotative meaning.

Brinton (15, p. 293) and Cronbach (25, p. 565) concurred that semantic differential is a proper tool for use in meaningful attitudes. While the Staats and Staats (87) and Tannenbaum (90) studies indicated that semantic differential is a fairly sensitive measure of attitude change.

The nature of this problem under study defines the class and form of the concept selected by the researcher. At times the researcher may actually make sampling analysis, but more often according to Osgood's experience, he simply used "good judgment" with respect to his problem (74, p. 77). Osgood, Suci and Tannenbaum further suggested that the researcher use concepts that are familiar to all his subjects, since unfamiliar concepts will produce a regression toward the middle of the scale.

The other part of semantic differential is the scales, which are chosen to incorporate the factors which have been found in previous studies. The process of choosing scales is more structured than that of choosing concepts. The two basic criteria for selecting scales are: (1) relevance to the concept being judged and (2) their factorial composition. Another criterion used in scale selection is their semantic stability for concepts and subjects in a particular study (74, p. 79). Kerlinger (49, p. 571) was in agreement and further stated that Osgood, Suci and Tannenbaum's original fifty scales (74, p. 67) by no means exhaust adjective possibilities. Heise (39, p. 67) recommended that published factor analysis studies provided a large spectrum of scales to draw on and usually a researcher can obtain a subset of scales which may be relevant to the concepts one wishes to study. All of the above comments and suggestions were considered when

concepts and scales were selected for the semantic differential technique used for this study.

The Accounting Semantic Differential Questionnaire

The questionnaire utilized to measure the change in attitudes of each group in this study was considered as an ancillary to the main research objective, the measurement of the accounting achievement level in the second course of accounting, hence the questionnaire is a modification of other semantic differential methods found to be valid.

The semantic differential questionnaires were constructed for this study to elicit responses that indicate attitudes toward accounting concepts: accounting as a course and accounting as a profession.

After the concepts were chosen, the next step in the construction of the instrument was the selection of the adjective bipolar pairs. All previous comments on this selection were considered during this process. Some consideration was given to representing the known factors. However, it was anticipated that whatever scales were chosen there was the strong possibility that the behavior of these scales in this experimental setting would be different from previous behavior. This behavior may adhere to the semantic stability criterion governing the selection of scales for semantic differentials for a particular study (74, p. 79).

After due consideration, the adjective bipolar sets were selected from Osgood, Suci and Tannenbaum (74) the original list of 50 adjective bipolar sets on page 38 and the thesaurus study of 76 sets on pages 53-61. Studies by Decoster and Prater (26), Berry (13) and Amyz (5), provided valuable data in the construction of the Accounting Semantic Questionnaires.

The Accounting Semantic Questionnaire contained a list of fifteen bipolar evaluative scales for each concept. Only evaluative factors were used since Osgood, Suci and Tannenbaum (74, p. 198) offered arguments that attitude is evaluative in nature and the evaluative factor is a measure of an individual's attitude. In addition, the bipolar evaluative scales were adapted from the following criteria: (1) the adjective must be evaluative in nature, (2) the adjectives in the scale must be bipolar, and (3) the adjectives must appear to be appropriate and valid for the concept being evaluated.

The instruments in their entirety are found in Appendix B. The forms included the cover sheet, instructions for the administration of the Accounting Semantic Differential Questionnaire, and directions for scoring the instrument. The instruction followed the form suggested by Osgood, Suci and Tannenbaum (74, p. 83).

Validity

The validity of a test concerns "what" the test measures and "how well it does so" (6, p. 99). Further, Nunnally (72, p. 5) stated that validity is a matter of "degree" rather than an "all or not" property, and validation is a continuous process. In addition, the validity of the measuring instrument is determined by its use.

Face and content validity are the primary factors in determining the validity of semantic differential scales. The appearance of whether the test "looks valid," not what the test actually measures, is referred to as "face validity" (6, p. 104). Osgood, Suci and Tannenbaum (74, p. 193) stated that the evaluative dimensions of the semantic differential technique "displays reasonable face-validity as a measure of attitudes."

An instrument is said to have "content" validation if the test content covers a representative sample of the behavior's domain being measured (6, p. 13). The content validity of the semantic differential is summarized in the following conclusive statement by Osgood, Suci and Tannenbaum (74):

Throughout our work with semantic differential we found no reasons to question the validity of the instrument on the basis of its correspondence with the results expected from common sense (p. 141).

Content validity of the semantic differential scale is supported by studies which compare the measurement of these scales with attitude measurements on more traditional scales.

Osgood, Suci and Tannenbaum (74, p. 103) reported on two such comparisons between semantic differential scales and traditional attitude scales: (1) comparison with the Thurstone scales on the concepts "The Negro," "the Church," and "Capital Punishment" reflected, in each case, a significance greater than chance ($p < .01$). The close correlation between the two scales, indicated ". . . that what the Thurstone scales measure, the evaluative factor of the semantic differential measures just about as well." (2) comparison with a Guttman scale, when attitudes of farmers toward the practice of rotation were assessed. The correlation between the two instruments were highly significant ($p < .01$), which indicated that the evaluative factors of the semantic differential scale is capable of measuring the same thing to a considerable degree by the Guttman scale.

Heise (39, p. 236) summarized the findings of several studies with the following comment, "The results of these and other studies, support the validity of the semantic differential as a technique for attitude measurement."

The validity of the Accounting Semantic Differential Questionnaire scale used in this study was developed by selecting scales devised and confirmed by Osgood, Suci and Tannenbaum as having definite evaluative factors.

Reliability

The reliability of an instrument is usually determined by "the degree to which a scale yields consistent scores when attitudes are measured a number of times" (72, p. 88). Osgood, Suci and Tannenbaum (74) stated that the basic "score" obtained from the semantic differential is the digit value (1 thru 7) corresponding to a person's check mark by which he indicated his judgment of a particular concept against a particular scale.

There are several methods of estimating the reliability of an attitude scale. Shaw and Wright (86) accepted the test-retest method of reliability. According to them it is relatively simple to administer and evaluate:

The attitude scale is administered to the same group of persons at two different times, and the correlation between the two sets of scores is computed. This coefficient, usually the Pearson r , is the reliability estimate (p. 16).

Osgood, Suci and Tannenbaum (74, p. 176) warned that the basic problem in estimating the reliability of any behavioral instrument seemed to be that of ascertaining the extent of measuring the unreliability of it. The reliability of the instrument, as measured seemed to decrease as the time interval between test and retest increased.

Test-retest reliability data have been obtained by several researchers using the semantic differential as a measure of attitudes. Heise (39, p. 245) reported that the test-retest reliability

coefficients for a study of 135 subjects ranged from .87 to .93, with a mean of .91. Osgood, Suci and Tannenbaum (74, p. 192) in a study relating to the test-retest reliability coefficients for the semantic differential, found that the range was from .83 to .91. Another study showed that when test-retest scores were correlated across 100 subjects and 40 items, producing $N = 4,000$, the resulting reliability correlation coefficient was .85 (74, p. 133).

The reliability of the Accounting Semantic Differential Questionnaires for this study was determined by the test-retest method in a pilot study of a group of thirty (30) students at Oklahoma State University. The test-retest time interval for the pilot study was a two-day span. They were administered on Tuesday and Thursday, respectively. The compressed time period limited the possibility of contamination due to longer retest intervals. During longer retest intervals there is a possibility that the meaning of the concept may change. At the same time the correlations in deviation for related scales may increase.

The test-retest reliability measure was computed using the Pearson product-moment coefficient correlation for the thirty (30) students in the pilot group. A reliability score was obtained in the pilot group. A reliability score was obtained for each concept. The correlation coefficients ranged from .78 to .87 (Appendix C, Tables IX to XI).

Statistical Procedure

Administration of Test and Questionnaires

The investigator received special permission from the Dean of the College of Business and Applied Program, Grambling State University,

Grambling, Louisiana to conduct the experiment in the area of accounting. Grambling State University participated in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program, 1978-79, which was one of the requirements of this study. Two accounting instructors, the regular professor and the visiting scholar, consented to participate in the experiment. These two instructors were asked to be as discrete as feasible in obtaining the data from the students. This request was necessary, in order to keep the students from learning that they were participants in an experiment. The instructors were also asked to incorporate the activities of the experiment into their regular teaching scheme, so as not to interrupt the classes. Also, instructors were aware that the purpose of the experiment was to measure changes in achievement levels and attitudes among accounting students, and not to measure their teaching ability.

The AICPA Accounting Achievement Test, Level I, Form G-S, was administered as a pre-test on January 29, 1979, to 96 accounting students who were enrolled in the second-course of accounting. At the same time pre-test attitudinal data were obtained from the subjects using the Accounting Semantic Differential Questionnaires constructed for this study. During the semester the students filled out an information sheet (Appendix A), which contained pertinent information for this study. The same type test and questionnaires were administered as post-tests to 98 accounting students on May 30, 1979.

Table II indicates the number of students taking the pre- and post-tests. Any student not taking the post-test or not having an ACT composite score or a GPA was dropped from the experiment. This reduced the population of this study to 82 students: control group (regular

professor), 40; experiment group (visiting scholar), 42.

TABLE II
SIZE OF SAMPLE

	Regular Instructor	Visiting Scholar	Totals
Students Present at Pre-Test	43	53	96
Students Present at Post-Test	48	50	98
Students Included in Study	40	42	82

Statistical Hypotheses

The primary objective (Objective I) of this study was to determine the overall difference in elementary accounting achievement levels existing between students taught by two different instructors. A secondary objective (Objective II) was to determine attitude change that occurred toward two accounting concepts, between students taught by two different instructors.

The statistical hypothesis tested for Objective I was:

H_0^1 : There is no significant difference between the mean performance in elementary accounting achievement of students who are taught

by a visiting scholar and the students taught by a regular professor of the predominately minority institution that is participating the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

H_a^1 : There is a significant difference between the mean performance in elementary accounting achievement of students who are taught by a visiting scholar and the students taught by a regular professor of the predominately minority institution that is participating in the AAA-AICPA Doctoral Program.

The statistical hypothesis tested for Objective II was:

H_0^2 : There is no significant difference in attitude change on the two accounting concepts (accounting as a course and accounting as a profession) between students who are taught by a visiting scholar and students who are taught by a regular professor of the predominately minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

H_a^2 : There is a significant difference in attitude change on the two accounting concepts (accounting as a course and accounting as a profession) between students who are taught by a visiting scholar and students taught by a regular professor of the predominately minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

Analysis of Results

The statistical techniques used to test the null hypotheses of Objective I and Objective II were the t statistic and analysis of covariance (79). The analysis of covariance is a technique which

controls for extraneous but relevant variables that would otherwise be confounded with the independent variable. The purpose of an analysis of covariance is to facilitate a decision about the effects of the independent variables, a decision about the effectiveness of the two instructional situations required for this study. Two control variables, intellectual aptitude (ACT raw scores) and previous scholastic performance (grade point average) for the research population were used to statistically adjust the dependent variable for differences in previous aptitude and scholastic performances. The dependent variable was the difference in the mean raw scores of the research population members' pre-test and post-test raw scores as measured by the AICPA Achievement Test, Level I, G-S.

For Objective II, the analysis of covariance was used to determine if there was significant difference in attitudes on the two concepts of accounting (accounting as a course and accounting as a profession) among the students of the two groups, the students' raw attitude scores were obtained from their responses on the Accounting Semantic Differential Questionnaires. The control variables were the same as those used of Objective I, with the dependent variable being the difference in the mean raw scores of the research population members' pre-test and post-test raw scores as measured by the Accounting Semantic Differential Questionnaires.

The analysis of covariance is a parameteric technique which requires that the following parameteric assumptions are met: (1) relationship between variables is linear; (2) homoscedasticity exists, that is, a constant variance exists for the conditional distribution of the dependent variable for fixed values of the independent variable;

(3) measures must be randomly drawn; and (4) variances in the subgroup must be relatively homogeneous (79). Analysis of covariance involves the F ratio, as a test of differences in adjusted means, the means being adjusted on the basis of the control variable or variables. Even when the analysis of covariance is skillfully used, there is a possibility that some variable which has been overlooked will bias the evaluation of the experiment. No appraisal of behavior can be perfectly reliable for behavior measurements; the same is not true for physical measurements. Behavior is affected by uncontrollable variables which may be identified as trait instability, health, motivation, self-concepts, socioeconomic status and degree of fatigue. These variables could be controllable if measures of them were available and quantifiable. The uncontrolled variables may be represented in varying degrees by the controlled variables. In this study, for example, motivation may be related to the previous scholastic performance (23, 48), and the similarity of the study's population may control the socioeconomic status factor.

The research situation required the use of "intact" classroom groups and was subject to interpretation difficulties that are not present when matching, equating or randomization of groups are used on measures related to the dependent variables, the difference in the raw scores of the research population members' pre-test and post-test raw scores as measured by the achievement test and the attitudinal tests.

Kerlinger (48) used ex post facto research design instead of quasi-experiment research design used by Cambell and Stanley (18) to describe the type of research designed required for this type research

situation. He defines the research design as follows:

Ex post facto research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables (p. 379).

This definition was applicable to this research situation in that direct control was not possible. There was a lack of control of the two instructional groups. Kerlinger further suggested great care and caution when interpreting the results of data of ex post facto investigations.

In addition to the use of the statistical technique, analysis of covariance, individual t values were computed to determine the original equivalency of the two instructional groups for some of the variables utilized in controlling the individual differences of students. Before determining the t values, the data were first checked for homogeneity by using the F test.

According to Kerlinger (49, p. 284) three conditions are necessary to validate the t statistic. The most famous assumption behind the use of parametric statistics is the assumption of normality. It is assumed that in using the t and F test that the samples are drawn from populations that are normally distributed. Popham (79, p. 139) concurs with Kerlinger that there can be considerable deviation from normality without the result of the t test being affected.

The homogeneity of variance assumption can be tested by a statistical technique known as the F statistic in which the larger estimate of variance is divided by the smaller estimate of variance. The quantity that results is known as F and is interpreted for statistical significance

from a probability table similar to the t table. The smaller the F the more tenable the assumption that variances are equal (49, p. 284).

Boneau (14, p. 62) states that even when the two above assumptions are violated, the probability statements resulting from the use of t and F statistic will be highly accurate.

The third assumption is the measures to be analyzed are continuous measures with equal intervals. This condition is met with the semantic differential as explained in Chapter III.

The following remarks by Kerlinger (49) were helpful in selecting the statistical test to treat the data in this study:

To the reader who have been alarmed by some of the statistics books the best advice probably is: Use parametric statistics, as well as the analysis of variance, routinely, but keep a sharp eye on data for gross departures from normality, homogeneity of variance, and equality of intervals. Be aware of measurement problems and their relation to statistical test . . . (p. 288).

The Statistical Analysis System (SAS) used for doing the statistical analysis of this study was designed and implemented by Anthony James Burr and James Howard Goodnight, Department of Statistics, North Carolina State University. The program was run at the Oklahoma State University Computer Center on an IBM 37/158 computer.

Summary

This chapter presented a description of study population, followed by a detailed discussion of the research instruments employed. Both an accounting achievement test and an attitude test were utilized. The AICPA Achievement Test, Level I, G-S, measured the achievement levels of the study population. The Accounting Semantics Differential Questionnaire, developed by the investigator, similar to the semantics

differential type attitude test described by Osgood, Suci and Tannenbaum (74), measured the attitude change of the study population.

A detailed explanation of the statistical procedures followed a description of administering the achievement test and the semantics differential questionnaires. Research objectives I and II were presented and then stated as statistical hypotheses. The chapter ended with a detailed account of the statistical techniques utilized to test the null hypotheses.

The next chapter presents the results of the statistical techniques utilized to test the statistical hypotheses and an interpretation of these results.

CHAPTER IV

ANALYSES OF DATA

The purpose of this study was to secure statistical evidence to determine if there is a significant difference in achievement and in attitude change between accounting students who are taught by different instructors. The t Statistic and the Analysis of Covariance were the statistics applied to determine the significance of the findings of this study.

This chapter presents results of the statistical analyses of the data. The two objectives investigated were:

I. To determine if significant differences in levels of accounting achievement exist between students enrolled in accounting courses taught by a visiting scholar and students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

II. To determine if significant differences in attitude changes occur between students enrolled in accounting courses taught by a visiting scholar and students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars program.

The data were obtained from accounting students who were enrolled in the second elementary accounting course at Grambling State University. A sample of 82 accounting students participated in the experiment. A

control group (taught by the regular professor) contained 40 students; and an experimental group (taught by the visiting scholar) contained 42 students.

The t Statistic was used to determine the differences between group means of the variables of the experiment. The Analysis of Covariance which controls for differences between groups that would otherwise be confounded with the independent variable was also used to analyze the data. The analysis of covariance is used when the investigator cannot make random assignments of groups, and when a relationship is being studied between a dependent variable and two groups (79, p. 223).

Since Objectives I and II dealt with the effectiveness of two instructional situations, two control variables, intellectual aptitude (ACT Composite raw scores) and previous scholastic performance (grade-point averages) were used to adjust the dependent variable for differences in previous aptitude and scholastic performances. The dependent variable for Objective I was the difference in the mean raw scores of the experiment population members' pre- and post-test raw scores as measured the AICPA Accounting Achievement Test, Level I, G-S. The students' accounting achievement tests were graded by the AICPA Testing Office. The students' accounting achievement test scores were provided by that office.

For Objective II the control variables were the same as those used in Objective I, with the dependent variable being the difference in the mean raw scores of the experiment population members' pre- and post-test raw scores as measured by the Accounting Semantic Differential Questionnaires on two attitude concepts. The two attitude concepts were,

"accounting as a course" and "accounting as a profession."

The analyses of data are presented in two main sections. The first section discusses the analysis related to the students' accounting achievement, while the second section discusses the analysis related to the students' attitude responses.

The data used in the various comparisons and analysis may be found in Appendix D.

Analysis Relating to Accounting Achievement

Objective I of this experiment was to determine if significant differences exists in accounting achievement levels between students taught by different instructors. The hypothesis is as follows:

H_0^1 : There is no significant difference between the mean performance in elementary accounting achievement of students who are taught by a visiting scholar and the students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

H_a^1 : There is a significant difference between the mean performance in elementary accounting achievement of students who are taught by a visiting scholar and the students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

The variables pertaining to accounting achievement that were used in this experiment included: the accounting achievement pre-test scores (ACH-PRE) and post-test scores (ACH-POS), and the difference

between the accounting achievement pre- and post-test scores (ACH-DIF). The ACT Composite scores and the GPA were the control variables.

The F Statistic was used to test variance equality for the three accounting achievement variables. In all cases the resulting F values indicated that all variances were homogenous.

A summary of the statistical analysis of the differences in accounting achievement mean scores using the t Statistic appears in Table II.

As can be seen in Table III, the t statistic showed that the accounting achievement post-test was significant at the 0.0199 level, which is less than the commonly used .05 and .10 levels of significance. Based on the mean scores for the two groups, the control group performance on the accounting achievement post-test was higher than the experimental group performance on the accounting achievement post-test.

Further, it was shown that the difference between accounting achievement pre- and post-test was significant at the 0.0034 level. This appeared to indicate that there was a significant difference between the control group and the experimental group based on the mean scores of the dependent variable - the difference between accounting achievement on the pre- and post-tests.

In summary, the t statistic showed that two of the accounting achievement variables, accounting achievement post-test and the difference between accounting achievement, were significant.

Since it is possible that the results of the t statistic were influenced by the difference in natural ability as measured by ACT and GPA, the investigator used the analysis of covariance to control for these factors.

TABLE III
PERFORMANCE MEASURES ON ACCOUNTING ACHIEVEMENT
CONTROL VERSUS EXPERIMENTAL GROUPS

Variables	Mean Scores		<u>t</u>	Probability of the t Statistic Occurring by Chance
	Control	Experimental		
ACH-PRE	3.7750	4.7143	-1.1355	0.2596
ACH-POS	6.3000	4.0953	2.3754	0.0199
ACH-DIF	2.5250	-0.6190	3.0239	0.0034

The Analysis of Covariance Statistics appear in Table IV. When the difference between accounting achievement pre- and post-tests mean scores were adjusted utilizing the analysis of covariance, the control group exceeded the experimental group. The F value between groups was 3.0406 indicating that the adjusted mean of the control group was significantly greater than the adjusted mean of the experimental group. The significance level of 0.0332 appeared to be sufficient to conclude that the control group performed significantly better than the experimental group.

It was necessary to inspect the dependent variable means to be certain which group performed significantly better than the other group. The analysis of covariance adjusted the dependent variable means of the groups to compensate for initial differences between groups on the control variables. The unadjusted and the adjusted means of the dependent

variable, difference in achievement, as well as the mean scores of the control variables, ACT scores and GPA are reported in Table V.

TABLE IV
ANALYSIS OF COVARIANCE OF
ACCOUNTING ACHIEVEMENT

Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F Statistic	Probability of the F Statistics Occurring by Chance
Between	3	206.7278	68.9093	3.0406	.0332
Within	78	1767.6746	22.6625		
Total	81	1974.4024			

Covariates: ACT and GPA

TABLE V
DEPENDENT AND CONTROL VARIABLE MEANS ACCOUNTING ACHIEVEMENT

	n	Dependent		Control	
		Difference in Achievement		ACT	GPA
		Unadjusted	Adjusted		
Experimental Group	42	-0.6190	-0.6414	11.7169	2.3736
Control Group	40	2.5250	2.5484	12.5000	2.4101

It was observed that the adjusted means for both groups were slightly greater than the unadjusted means. By inspecting the adjusted means it can be seen that the control group performed significantly better than the experimental group. This experiment, then, would not support the null hypothesis for Objective I that there is no significant difference between the mean performance in elementary accounting achievement of students taught by different instructors.

In this case the experimental group taught by the visiting scholar showed an apparent decrease in the competency level when the accounting achievement pre-test mean scores were compared to the post-test mean scores for the groups. There are several possible reasons for these results. First, the experiment time-span may have been too short thus the visiting scholar may not have adjusted to the environment. Second, the students may not have adjusted to the visiting scholar's teaching techniques. Third, factors such as motivation, self-concepts, socio-economic status, study habits, and grading standards and policies could have also exerted an influence. Fourth, since the visiting scholar had taught in a different environment than the regular professor, his own set of personal traits may have caused bias. Finally, the visiting scholar at Grambling State University did not have a doctoral degree in accounting and he may not have had the experience suggested by the AAA-AICPA Committee on Faculty Fellows and Visiting Scholars. Time may have also been a factor, because the participating institutions were not notified until late in the fall of 1978 that they were eligible for a visiting scholar.

Analysis Relating to Attitude Responses

Objective II of this experiment was to test the differences in attitude changes existing between students taught by two instructors.

The statistical hypothesis tested for Objective II was:

H_0^2 : There is no significant difference in attitude change on the two accounting concepts (accounting as a course and accounting as a profession) between students who are taught by a visiting scholar and students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

H_a^2 : There is a significant difference in attitude change on the two accounting concepts (accounting as a course and accounting as a profession) between students who are taught by a visiting scholar and students taught by a regular professor of the predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

The attitude data were based on the students' attitudes toward two accounting concepts: Concept I, "accounting as a course," and Concept II, "accounting as a profession." For future identification these concepts are labeled Concept I and Concept II.

The variables relating to changes in attitude included, attitudes toward "accounting as a course" pre-test scores (ATT-PRE1) and post-test scores (ATT-POS1) which were used to compute the dependent variable for Concept I, the difference between attitudes (ATT-DIF1); attitudes toward "accounting as a profession" pre-test scores (ATT-PRE2) and post-test scores (ATT-POS2) which were used to compute the dependent

variable for Concept II, the difference between attitudes (ATT-DIF2).

The ACT Composite scores and the GPA were the control variables.

The group variances for each attitudinal variable were checked for homogeneity using the F Statistic. In all cases the resulting F value indicated that all variances were homogeneous.

The results of the t statistic for differences of means on the attitudinal variables appear in Table VI.

TABLE VI
ATTITUDE SCORES ON THE TWO ACCOUNTING CONCEPTS
"ACCOUNTING AS A COURSE" AND "ACCOUNTING AS
A PROFESSION" CONTROL VERSUS
EXPERIMENTAL GROUPS

Variable	Concept	Mean Scores		<u>t</u> Statistic	Probability of the <u>t</u> Statistic Occurring by Chance
		Control	Experimental		
ATT-PRE1	I	83.4250	82.2857	0.06939	0.9492
ATT-POS1	I	78.5000	82.8333	-2.0071	0.0481
ATT-DIF1	I	-3.9250	0.5476	-1.9727	0.0520
ATT-PRE2	II	83.9750	85.1666	-0.5867	0.5591
ATT-POS2	II	84.0750	84.3809	-0.1418	0.8876
ATT-DIF2	II	0.1000	-0.7857	0.4630	0.6446

Table VI reveals that when the t statistic was used to determine the differences of the means of the attitudinal variables, two attitudinal variables appeared to be significant. The post-test mean scores on Concept I, showed significance at the 0.0481 level, which is less than the conventional .05 and .10 levels of significance. The experimental group's mean scores were higher than the control group's mean scores on Concept I, "accounting as a course" post-test.

The attitudinal variable, the difference between attitudes on Concept I was significant at the 0.0520 level, while greater than the commonly used .05 level, has practical significance. This indicated that there was a significant difference between the control group and the experimental group based on the mean scores of the dependent variable, the difference between attitudes on Concept I. The mean scores for the experimental group were much higher than the mean scores for the control group.

To summarize, the analysis of the t statistic showed that two of the attitudinal variables - the post-test of Concept I and the difference between attitudes on Concept I - were significant. Since it is possible that the results were influenced by differences in natural ability as measured by ACT scores and GPA, the investigator used the analysis of covariance to control for these factors.

The analysis of covariance statistics appear in Tables VII and VIII. The difference in attitude pre- and post-test means on both concepts were adjusted using the analysis of covariance. The F value between groups on Concept I was 1.9894 which has a probability of 0.1211 of occurring by chance, while the F value between groups on Concept II was 1.5386 which has a probability of 0.2099 of occurring by chance.

TABLE VII

ANALYSIS OF COVARIANCE OF THE ATTITUDE CHANGE ON
THE CONCEPT "ACCOUNTING AS A COURSE"

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Probability of the F Statistic Occurring by Chance
Between	3	627.9657	209.3219	1.9894	0.1211
Within	78	8207.0587	105.2187		
Total	81	8835.0244			

Covariates: ACT Composite scores and GPA

TABLE VIII

ANALYSIS OF COVARIANCE OF THE ATTITUDE CHANGE ON
THE CONCEPT "ACCOUNTING AS A PROFESSION"

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Probability of the F Statistic Occurring by Chance
Between	3	336.0385	112.0128	1.5386	0.2099
Within	78	5678.7054	72.8039		
Total	81	6014.7439			

Covariates: ACT Composite scores and GPA

Thus, it was concluded that the two groups did not differ significantly in terms of attitude behavior.

The unadjusted and adjusted means of the dependent variable, on attitude changes, as well as the mean scores of the control variables ACT scores and GPA are reported in Tables IX and X.

It was observed that the unadjusted means of both groups were adjusted slightly downward for Concept I, and the unadjusted means of both groups were adjusted slightly upward for Concept II. By inspecting the adjusted means it can be seen that the relative positions of the groups showed only a slight change.

In summary, the F value between groups on attitude change Concept I was 1.9894 which has a probability of 0.1211 of occurring by chance and on Concept II was 1.5386 which has a probability of 0.2099 of occurring by chance. Thus, when the analysis of covariance was used to adjust the original means of the attitude changes, the evidence supports the null hypothesis that there is not a significant difference in attitude change on the two accounting concepts between students taught by a visiting scholar and students taught by a regular professor at a predominantly minority institution that is participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program. Since the significance levels were quite high, the investigation could not reject the null hypothesis. While there may be differences in attitude change, no conclusions may be drawn based on the experiment data.

TABLE IX
DEPENDENT AND CONTROL VARIABLE MEANS ON THE ATTITUDE
CONCEPT "ACCOUNTING AS A COURSE"

	n	Dependent		Control	
		Difference in Attitudes		ACT	GPA
		Unadjusted	Adjusted		
Experimental Group	42	0.5476	0.3918	11.7169	2.3736
Control Group	40	-3.9250	-3.7614	12.5000	2.4101

TABLE X
DEPENDENT AND CONTROL VARIABLE MEANS ON THE ATTITUDE
CONCEPT "ACCOUNTING AS A PROFESSION"

	n	Dependent		Control	
		Difference in Attitudes		ACT	GPA
		Unadjusted	Adjusted		
Experimental Group	42	-0.7857	-0.9593	11.7169	2.3736
Control Group	40	0.1000	0.2822	12.500	2.4101

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is divided into three major sections. The first section summarizes the purposes, procedures, and statistical analyses of the study. The second section contains conclusions drawn from the statistical analyses of the previous chapter. Section three is comprised of a listing of recommendations based upon observations which were made during the course of completing this research study.

Summary

The purpose of this experiment was to ascertain if there was a significant difference in accounting achievement and in changes of student attitudes toward accounting during the second year college principles of accounting course, between students taught by two different instructors.

Accounting achievement was defined as the difference between the pre- and post-test scores on the AICPA Accounting Achievement Test, Level I, G-S.

Student attitudes toward two concepts in accounting, "accounting as a course" and "accounting as a profession," were measured by using Accounting Semantic Differential Questionnaires. The questionnaires contained 15 bi-polar adjectives for each concept. Each scale was

divided into seven numbered parts, and the students' attitude score on each concept was defined as the total numerical value of the selections which the student checked on the scales. The change in student attitude for each concept was defined as the difference between pre- and post-test scores on the attitude test.

Two classes in the second course of elementary-level accounting sequence, Accounting 201, at Grambling State University were used in the experiment during the spring semester, 1979. The control group was taught by a regular professor and the experimental group was taught by a visiting scholar. Initially, a total of 101 students - control group, 43; experimental group, 58 - participated in the pre-tests. The number of participants in the sample was lowered to 82 students - control group, 40; experimental group, 42 - after the post-test. Any student not taking the post-test or not having an ACT Composite score or a GPA, out of necessity was dropped from the experiment.

The t statistic and the analysis of covariance were the statistics used to test the data for both student achievements and attitudes. These statistical techniques indicated that there is a significant difference between the adjusted mean performance in elementary accounting achievement of students taught by different instructors. The adjusted mean score for the control group exceeded the adjusted mean score for the experimental group, the difference was sufficient to be significant at the 0.05 level when the mean scores were adjusted for the covariates.

There was no significant differences in student attitude changes among the two groups on the two concepts "accounting as a course" and "accounting as a profession," when the mean scores were adjusted for the covariates.

Conclusions

It is difficult to generalize from the statistical analyses of this study; however, they are valid for the specific time and place of the experiment. They are applicable to the specific course and classes investigated at Grambling State University, during the spring semester, 1979. It is impossible to state, with a degree of exactitude, that a replication of this study would produce the same or similar results at any of other institutions who are participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

Accounting Achievement Conclusions

The analysis indicated that the experimental group scored higher on the accounting achievement pre-test than the control group, while the control group scored significantly higher on the accounting post-test than the experimental group. The experimental group appeared to have been more knowledgeable in elementary accounting to begin their second semester of elementary accounting, but at the end of the second semester the control group appeared to have been more knowledgeable in elementary accounting. This was unexpected, since it had been presumed that a visiting scholar would at least maintain or increase the competency level that the students existed on the accounting achievement pre-test. After adjusting to offset differences between groups for possible dissimilar ACT Composite scores and grading standards, the control group's performance on the accounting achievement pre-test was still significantly higher than the experimental group's performance. Therefore, the null hypothesis for Objective I, stating that no significant

differences in accounting achievement exist between all students in the control group (taught by a regular professor) and all students in the experimental group (taught by a visiting scholar was rejected. The investigator was unable to determine with certainty why the students who were taught by the visiting scholar did not perform as well as the students taught by the regular professor. The investigator would offer as conjecture, that perhaps other factors may exert more influence on the accounting achievement of students than the instructor. These factors may have been behavioral in nature and could be identified as motivation, aspirations, self-concepts, health, study habits and socio-economic status.

Some of these factors may apply to visiting scholar and the regular professor as well as the students of this experiment. Also, factors such as teaching techniques, expectations, and grading standards and policies of the instructors may have exerted influence on the accounting achievement of students. Further, the time span of this experiment may have been too short thus the visiting scholar may not have adjusted to the environment, and the students may not have adjusted to the visiting scholar.

Also, the visiting scholar did not have a terminal degree in accounting or the experience suggested by the AAA-AICPA Committee on Faculty Fellows and Visiting Scholars.

This study did not directly consider students' or instructors' behavioral characteristics, except as reflected by demonstrated scholastics performance.

Conclusions About Student Attitudes

The attitude scores indicate that no significant difference in attitude change exists for the two accounting concepts, "accounting as a course" and "accounting as a profession," between students who were taught by a regular professor and students who were taught by a visiting scholar. Therefore, the investigator concluded that the null hypothesis for Objective II, that there is no significant difference in attitude change between the groups on the two accounting concepts could not be rejected. Each accounting instructor had the same relative effect on student attitude changes when compared with each other on the two concepts of accounting.

Other Conclusions

The above conclusions of accounting achievement and student attitudes appear to be counter to the assumptions of this study, that the visiting scholar would at least maintain or increase competency levels and would produce positive attitude changes among students enrolled in accounting courses at predominantly minority institutions. These conclusions relate to the short-run effects of the AAA-AICPA Doctoral Fellows and Visiting Scholars Program.

However, it is not known what impact these conclusions might have on the long-run goal of the program. The long-run goal is to increase the number of Ph.D.'s among minority accounting professors, by encouraging more minority professors to enter accounting doctoral programs. Apparently, this goal is being met according to Sharon L. Donahue, Manager, Minority Recruitment, American Institute of Certified

Accountants. In a recent speech she stated that the AAA-AICPA Committee on Doctoral Fellows and Visiting Scholars Program has awarded eleven doctoral fellowships since its inception in 1975. To summarize, two recipients have received the doctoral degree and are teaching in predominantly minority institutions, eight are at the dissertation stage of an accounting doctoral program, and one recipient's status is unknown. It appears that the major objective of the AAA-AICPA Doctoral Fellows and Visiting Scholars Program is being met, although the results of this study did not indicate that the students were not positively affected in the short-run.

The methodology of this study is such that it might be adopted for use to test the benefits of other similar programs to determine some of the factors that could influence aptitudes and attitudes of students in different educational situations.

Recommendations

1. A similar experiment could be conducted at all predominantly minority institutions that are participating in the AAA-AICPA Doctoral Fellows and Visiting Scholars Program, in order to confirm the results of this study and add to the validity of the generalization.

2. A replication of this study could be conducted over a longer time span, in order to allow the visiting professor time to adjust to a different environment.

3. A follow-up study of the relationship of AICPA Accounting Achievement Test, Level I, G-S, scores to the achievement of the population of this study who are enrolled in Intermediate Accounting could provide further insight on the study.

4. The measurement of motivation and the desire to learn accounting could be included in a similar research design to ascertain if differences in accounting achievement between groups of students taught by different instructors result from differences relating to personal characteristics as the quality of accounting instruction they receive.

5. A study could be completed relating educational preparation of instructors in minority institutions and performance of their students on elementary accounting achievement test.

6. Until minority students attain parity with their counterparts, in accounting achievement, variables other than the ones in this study could be investigated in attempt to determine the optimum educational atmosphere to enhance opportunities for minority students to develop as useful and productive citizens.

7. Finally, the faculty of predominantly minority institutions could be alerted to developments in their classes that may lead to better teaching techniques. Student groups are made up of individuals who may need different stimuli to produce look-for responses. Consequently individual differences should be considered in deciding upon the appropriate pedagogic technique.

BIBLIOGRAPHY

1. AAA-AICPA Committee on Faculty Fellows and Visiting Scholars. Letter to the Chairman of Accounting Departments in Developing Institutions, 5 January 1976.
2. "AICPA Council Acts on Experience Requirement, Incorporation, APB, A Recruitment from Minority Groups." The Journal of Accountancy, 127 (June, 1969), pp. 9-12.
3. American Institute of Certified Public Accountants, Committee on Personal Testing. Results, 1975-1976 College Accounting Testing Program. Accounting Testing Bulletin 62, New York: AICPA, August, 1977.
4. American Institute of Certified Public Accountants. The College Testing Program. New York: American Institute Certified Public Accountant.
5. Amyx, Jack F. "An Experiment to Determine the Effects of the Length of Problems on the Achievement and Attitudes of College Accounting Students." (Unpublished Ed.D. dissertation, Oklahoma State University, 1972.)
6. Anastasi, Anne. Psychological Testing. Third Edition. London: The MacMillian Company, Collier and MacMillian Limited, 1968.
7. Anderson, W. T. "Educational and Professional Training." Journal of Accountancy, 111 (March, 1961), pp. 86-89.
8. Angoff, W. T., Editor, Technical Manual, College Entrance Examination Board. Princeton, N.J.: Educational Testing Service, 1968.
9. Ashworth, John. "The Importance of Black Colleges to Accountants." Journal of Accountancy, 132 (December, 1971), pp. 87-89.
10. Barran, Rhelda W. "An Experiment to Determine the Effect of Teaching Methods on Achievement and Attitude of Students in Principles of Accounting Classes." (Unpublished D.B.A. dissertation, Mississippi State University, 1978.)
11. Bayer, Alan and Robert Boruck. The Black Student in American Colleges. ACE Research Reports, 4. Washington: ACE, 1969.

12. Benis, Martin, Claire Brody and Robert Johnson. "Utilization of the Small Group Approach to Teaching Intermediate Accounting." The Accounting Review, 51 (October, 1976), pp. 894-898.
13. Berry, Maureen H. "The Effectiveness of Active Student Participation in Meeting the Cognitive and Affective Objectives of an Elementary Accounting Course." Accounting Education Problems and Prospects, Editor: Don Edwards. American Accounting Association, 1974, pp. 564-571.
14. Boneau, C. "The Effects of Violation of Assumptions Underlying the t Test." Psychological Bulletin, 57 (1960), pp. 49-64.
15. Brinton, James E. "Deriving an Attitude Scale from Semantic Differential Data." Public Opinion Quarterly, 25 (1961), pp. 289-295.
16. Buehlmann, D. M. "ISU's Use of the AICPA's College Testing Program." Journal of Accountancy, 139 (May, 1975), pp. 93-96.
17. Buehlmann, D. M. "Student Attitudes Toward Management Accounting and the Influence of the Management Accounting Course." Accounting Education Problems and Prospects. Editor: Don Edwards. American Accounting Association (1974), pp. 564-571.
18. Campbell, Donald T. and Stanley, Julian C. Experimental and Quasi-Experimental Designs for Research. USA: Rand McNally and Co., 1970.
19. Carnegie Commission on Higher Education. A Chance to Learn: An Action Agenda for Equal Opportunity in Higher Education. New York: McGraw-Hill, 1970.
20. Carnegie Commission on Higher Education. From Isolation to Mainstream: Problems of the Colleges Founded for Negroes. New York: McGraw Hill, 1971.
21. Chase, Clinton I. and Spencer Barrett. "A Table of Concordance between ACT and SAT." Journal of Student Personnel, 7 (March, 1966), pp. 105-106.
22. Cohen, A. M. Dateline '79: Heretical Concepts for the Community College. Beverly Hills, California: Glencoe Press, 1969.
23. Cook, David R. and Lafleun, N. Kenneth, A Guide to Educational Research, Allyn and Bacan, Inc. Bastan Second Edition, 1975.
24. Cosand, John P. "Admission Criteria (Review of the Literature)." College and University, 28 (April, 1953), pp. 338-364.
25. Cranback, Lee J. Essential of Psychological Testing. New York: Harper and Row, Publisher, 1970.

26. Decoster, Don and Prater, George. "An Experimental Study of the Use of a Business Game in Elementary Accounting." The Accounting Reivew, 48 (January, 1973), pp. 137-142.
27. Doherty, William O. "Keep the Heat on Recruiting." Journal of Accountancy, 132 (June, 1971), pp. 39-40.
28. Downie, N. M. and R. W. Heath. Basic Statistical Methods, 3rd Edition. New York: Harper and Row Publishers, Incorporated, 1970.
29. Feldman, Kenneth and Theodore Newcomb, Editors. Impact of College on Students. San Francisco: Jossey-Bass Inc., 1966.
30. Friche, Benno G. "Prediction, Selection, Mortality, and Quality Control." College and University, 32 (Fall, 1956), pp. 34-51.
31. Funches, DeLans. "Correlations Between Secondary School Transcript Averages and Grade Point Averages and Between ACT Scores and Grade Point Averages of Freshmen at Jackson State College." Colleges and University, 43 (Fall, 1967), pp. 52-54.
32. Gifford, William R. "Accounting's Aim." Journal of College Placement, 25 (Winter, 1975), pp. 41-45.
33. _____. "Advancing Ethnic Integration in the Accounting Profession." The CPA Journal, 54 (February, 1974), p. 12.
34. _____. "Black Accountants." Price Waterhouse, 18 (1973), pp. 44-53.
35. Graham, John. "Recruitment for the Future a New Approach." Journal of Accountancy, 121 (May, 1971), pp. 66-68.
36. Green, David Jr., and Selewyn U. Becker. "Survey of Opinion on Budgets," (Unpublished questionnaire (pretest draft) distributed at the Illinois Teachers of Accounting Conference, November, 1970).
37. Groft, William. "Achievement of Native and Transfer Accounting Students in Selected Colleges and Universities in Pennsylvania." Collegiate News and Views, Vol. XXXII No. 2 (Winter, 1978-79), pp. 5-7.
38. Harris, LeBrone. "Personal Traits of Accountants." Journal of Accountancy, 133 (April, 1972), pp. 87-89.
39. Heise, David. "The Semantic Differential and Attitude Research," Attitude Measurement, Editor, Gene F. Summers. Chicago: Rand McNally and Company, 1970, pp. 235-253.

40. Heist, P. and H. Webster. "A Research Orientation to Selection, Admission, and Differential Education." Research on College Students, Editor H. T. Sprague. Boulder, Colorado: Western Interstate Commission of Higher Education, 1960, pp. 21-40.
41. Holland, J. L. and A. W. Austin. "The Prediction of Academic, Artistic, Scientific, and Social Achievement of Under-graduates of Superior Scholastic Aptitude." Journal of Educational Psychology, 53 (1962), pp. 132-143.
42. Holland, J. L. and J. M. Richards. "Academic and Nonacademic Accomplishments in Representative Sample of Students Taking the ACT." College and University, 43 (Fall, 1967), pp. 60-71.
43. Hoyt, D. P. "College Grades and Adult Accomplishment." Educational Record, 47 (1966), pp. 70-75.
44. _____. "Forecasting Academic Success in Specific Colleges." ACT Research Report, Number 27. Iowa City: American College Testing Program, 1968.
45. Hull, W. Frank. "Higher Education and the Black Atypical Student." Center for Study of Higher Education, Report No. 4. The Pennsylvania State University, February, 1970.
46. Jacobs, Robert. "Measurement and Guidance in the Field of Public Accounting." The Accounting Review, 25 (January, 1950), pp. 27-34.
47. Johnson, Carlos E. "The Effects of Computer Assisted Instruction of the Academic Achievement of Students Enrolled in Accounting I Classes." (Unpublished Ed.D. dissertation, Oklahoma State University, 1977.)
48. Katzell, Mildred E. The AICPA Achievement Tests: A Record of Achievement. New York: AICPA College Accounting Testing Bulletin 62, August, 1977.
49. Kerlinger, Fred N. Foundations of Behavioral Research. New York: Halt, Rinehart and Winston, Inc., 1973.
50. Khan, S. B. and Joel Weiss. "The Teaching of Affective Responses." The Second Handbook of Research on Teaching. Editor, Robert M. W. Travers. Chicago: Rand McNally and Company, 1973, pp. 759-804.
51. Knull, George. "A Study of Two-Year College Transfer Students Elementary Accounting Achievement." (Unpublished Ph.D. dissertation, Michigan State University, 1971.)
52. Lang, Edwin R. and John Ashworth. "Integration in Fact - A Test of the Professional Accountant as a Citizen." The Journal of Accountancy, 131 (April, 1971), pp. 41-46.

53. Larsen, Tara Marie. "A Study of the Student Records at East Carolina College as Relates to Prediction in Elementary Accounting." (Unpublished Ph.D. dissertation, University of Minnesota, 1957.)
54. Laughlin, Eugene J., James Gentry and Carolyn May. "Comparison of Alternative Forms of Teaching Fundamentals of Accounting." The Accounting Review, 51 (April, 1976), pp. 347-351.
55. Laven, D. G. The Prediction of Academic Performance: A Theoretical Analysis and Review of Research. New York: Russel Sage Foundation, 1965.
56. Lenning, J. T., Leo A. Munday, O. Bernard Johnson, Allen Vander Wells and Eldon J. Bone. "Nonintellective Correlates of Grades, Persistence and Academic Learning in College: The Published Literature Through the Decade of the Sixties." ACT Morograph Fourteen (1974).
57. Letters to the Editor. "Supply and Demand in Accounting: The Picture is Less Black than Reported." The Chronicle of Higher Education, 27 (January 8, 1979), p. 25.
58. Lins, L. J., A. P. Abell and H. C. Hutchin. "Relative Usefulness in Predicting Academic Success of the ACT, the SAT, and Some Other Variables." The Journal of Experimental Education, 35 (Winter, 1966), pp. 1-29.
59. Magarell, Jack. "Supply and Demand of Public Accounting." The Chronicle of Higher Education, 17 (November 27, 1978), p. 11.
60. McCormick, Ronald R. and Montgomery, James B. "The Use of AICPA. Tests in Evaluating Transfer Students at a University." Journal of Accountancy, 138 (August, 1974), pp. 82-88.
61. McGarth, Earl L. The Predominantly Negro Colleges and Universities in Transition. Published for the Institute of Higher Education. Teachers College, Columbia University: Bureau of Publication, 1965.
62. McInff, Lyle H. "The Relationship of Certain Selected Factors to the Success or Failure of Second-Quarter Accounting Students at Utah State University." (Unpublished D.B.A. dissertation, University of Southern California, 1965.)
63. Mead, George H. Mind, Self, and Society from the Standpoint of a Social Behaviorist. Chicago: The University of Chicago Press, 1934.
64. Middleton, Lorengo. "Enrollment of Blacks Doubled Since 1970." The Chronicle of Higher Education, 20 (January 29, 1979), p. 2.

65. Mitchill, Bert. "The Black Minority in the CPA Profession." The Journal of Accountancy, 128 (October, 1969), pp. 41-48.
66. _____. "The Status of the Black CPA - An Update." The Journal of Accountancy, 141 (May, 1976), pp. 52-58.
67. Mobley, Sybil C. "Accounting - New Vista For Black Students." Price Waterhouse Reivew, 15 (Autumn, 1970), pp. 60-63.
68. Morici, Anthony R. "Relation Between the Scores on the AIA Orientation Test with the AIA Elementary, Advanced Tests and Accounting Grades." The Journal of Educational Research, 51 (March, 1958), pp. 549-552.
69. Munday, Leo A. "Correlation Between ACT and Other Predictors of Academic Success in College." College and University, 44 (Fall, 1968), pp. 67-77.
70. North, Robert D. "Tests for the Accounting Profession." Educational and Psychological Measurement, 18 (Winter, 1958), pp. 694-698.
71. North, Robert D. "Relation Between Scores on the AIA Elementary and Advanced Accounting Achievement Tests." The Accounting Review, 31 (January, 1956), pp. 50-55.
72. Nunnally, Jum C. Psychometric Theory. Second Edition. New York: McGraw Hill Book Co., Inc., 1978.
73. Oppenheim, A. N. Questionnaire Design and Attitude Measurement. New York: Basic Books, Inc., 1966.
74. Osgood Charles E, George J. Suci and Percy H. Tannenbaum. The Measurement of Meaning. Unbana: University of Illinois Press, 1975.
75. Pace, C. Robert. "Diversity of College Environment." Journal of National Association of Women Deans and Counselors, 25 (1961), pp. 21-25.
76. Patton, William. "Equal Opportunity in Education." The Journal of Accountancy, 131 (December, 1971), p. 37.
77. Pawliczek, Ronald B. "The Effect of Different Scoring Plans on Student Performance in an Elementary Accounting Course." The Accounting Review, 52 (July, 1977), pp. 721-726.
78. Peterson, Charles A. "The Prediction of Students, Success in College Accounting." (Unpublished Ph.D. dissertation, University of Minnesota, 1966.)
79. Popham, W. James. Educational Statistics: Use and Interpretation. New York: Harper and Row, Publishers, Inc., 1967.

80. Public Negro Colleges - A Fact Book. Office for the Advancement of Public Negro Colleges. Atlanta, Georgia, March, 1971.
81. Rayer, John E. "Selection and Use of Certain Factors Significant in Predicting Achievement of Students in First-Semester Accounting at the University of Miami, 1950-1953." (Unpublished Ed.D. dissertation, Indiana University, 1955.)
82. Sanders, Allen. "A New Introduction to Accounting Combined with a Traditional Textbook: An Empirical Research Study." Accounting Education: Problems and Prospects. Editor, James Don Edwards, American Accounting Association, 1974, pp. 596-600.
83. Sax, Gilbert. Empirical Foundations of Educational Research. New Jersey: Prentice Hall, 1968, Chapter 2.
84. Schroeder, Wayne L. and George W. Sledge. "Factors Related to Collegiate Academic Success." The Journal of College Student Personnel, 7 (March, 1966), pp. 97-104.
85. Second Handbook on Teaching. Editor, Robert M. W. Traver. Chicago: Rand-McNally, 1973.
86. Shaw, Marvin E. and Jack M. Wright. Scales for the Measurement of Attitudes. New York: McGraw Hill Book Company, 1967.
87. Staats, A. and C. Staats. "Attitudes Established by Classical Conditioning." Journal of Abnormal and Social Psychology, 57 (1958), pp. 37-40.
88. Stauffer, Anne K. Research Associate of the Professional Examination Division, The Psychological Corporation. Personal Letter. New York, 15 January 1979.
89. Tannenbaum, Percy H. "Initial Attitude Toward Source and Concept as Factors in Attitude Change Through Communication." Public Opinion Quarterly, 20 (1956), pp. 413-425.
90. Tannenbaum, P. H. "Mediated Generalization of Attitude Change via the Principle of Congruity." Journal of Personality and Social Psychology, 3 (1966), pp. 493-499.
91. "The Profile of the President: Ralph Kent," The Journal of Accountancy, 27 (November, 1968), p. 24.
92. Thompson, C. H. "The Higher Education of Negro Americans: Prospects and Programs." Journal of Negro Education, 36 (1967), pp. 295-314.
93. Traxler, Arthur E. "Objective Testing in the Field of Accounting." Educational and Psychological Measurement, 11 (Autumn, 1951), p. 430-431.

94. Veazey, Richard E. and Ik-Uhan Kwan. "AICPA Achievement Test and Competence in Accountancy: A Dummy Variable Approach. Proceedings of the 59th Annual Meeting of the American Accounting Association, Tuson, Arizona, August 18-20, 1975.
95. Whyte, William H. The Organizational Man. New York: Simon and Schuster, 1956.
96. Wiersma, William. Researcher Methods in Education, An Introduction. Itasca, Illinois 60143: F. E. Peacock Publishers, Inc., 1975.
97. Winer, B. J. Statistical Principles in Experimental Design. McGraw-Hill Book Co., 1971.
98. Wood, Ben D., Arthur E. Traxler, and Warren W. Nessley. "College Accounting Testing Program." The Accounting Review, 23 (January, 1948), pp. 63-83.

APPENDIX A
INFORMATION SHEET

INFORMATION SHEET

NAME _____

COURSE _____ SECTION _____

CLASSIFICATION _____

FIRST COURSE IN ACCOUNTING GRADE _____

CUMULATIVE GRADE POINT AVERAGE _____

MAJOR _____

MINOR _____

My ACT Scores and my cumulative grade point average may be
obtained by the investigator of this test.

STUDENT'S SIGNATURE _____

STUDENT'S ID NUMBER _____

APPENDIX B

ACCOUNTING SEMANTIC DIFFERENTIAL QUESTIONNAIRES

Accounting Semantic Differential Questionnaires

INSTRUCTIONS

This is a study of the way you think and feel toward certain concepts. The purpose of the questionnaire is to measure your feelings toward these concepts by having you judge these concepts against a series of descriptive scales. There are two different concepts to judge and beneath each is a set of scales. The scale is a numbered line with an adjective at each end of the line. Using your personal feelings, you are to rate the concept listed at the top of each questionnaire on each of the scales below.

How to Use the Scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your check-mark in one of the following ways:

fair $\frac{X}{3}$: $\frac{\quad}{2}$: $\frac{\quad}{1}$: $\frac{\quad}{0}$: $\frac{\quad}{1}$: $\frac{\quad}{2}$: $\frac{\quad}{3}$ unfair

fair $\frac{\quad}{3}$: $\frac{\quad}{2}$: $\frac{\quad}{1}$: $\frac{\quad}{0}$: $\frac{\quad}{1}$: $\frac{\quad}{2}$: $\frac{X}{3}$ unfair

If you feel that the concept is quite closely related to one of the other end of the scale (but not extremely), you should place your check-mark in one of the following ways:

strong $\frac{\quad}{3}$: $\frac{X}{2}$: $\frac{\quad}{1}$: $\frac{\quad}{0}$: $\frac{\quad}{1}$: $\frac{\quad}{2}$: $\frac{\quad}{3}$ weak

strong $\frac{\quad}{3}$: $\frac{\quad}{2}$: $\frac{\quad}{1}$: $\frac{\quad}{0}$: $\frac{\quad}{1}$: $\frac{X}{2}$: $\frac{\quad}{3}$ weak

If the concept is only slightly related to one side as opposed to the other side (but is not neutral), then you should check one of the following ways:

active $\frac{\quad}{3}$: $\frac{\quad}{2}$: $\frac{X}{1}$: $\frac{\quad}{0}$: $\frac{\quad}{1}$: $\frac{\quad}{2}$: $\frac{\quad}{3}$ inactive

active $\frac{\quad}{3}$: $\frac{\quad}{2}$: $\frac{\quad}{1}$: $\frac{\quad}{0}$: $\frac{X}{1}$: $\frac{\quad}{2}$: $\frac{\quad}{3}$ inactive

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the thing you are judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant (unrelated to the concept) then you should place your check-mark in the middle space:

safe $\frac{\quad}{3} : \frac{\quad}{2} : \frac{\quad}{1} : \frac{X}{0} : \frac{\quad}{1} : \frac{\quad}{2} : \frac{\quad}{3}$ unsafe

IMPORTANT: (1) Place your check-marks in the middle of spaces not on boundaries:

(This) X (Not This)

$\frac{\quad}{3} : \frac{\quad}{2} : \frac{\quad}{1} : \frac{X}{0} : \frac{\quad}{1} : \frac{\quad}{2} : \frac{\quad}{3}$

- (2) Be sure you check every scale for every concept - do not omit any.
- (3) Never put more than one check-mark on a single scale.

Work at a fairly high rate of speed through the questionnaire. Make each item a separate and independent judgment. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feeling" about the item, that we want. On the other hand, do not be careless, because we want your true impression.

All information will be confidential and will not affect your grade in this course. The individual instructors will not see the data from these questionnaires.

ACCOUNTING AS A PROFESSION

bad	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	good
colorful	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	colorless
complex	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	simple
important	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	unimportant
dishonorable	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	honorable
interesting	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	dull
meaningless	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	meaningful
pleasant	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	unpleasant
progressive	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	nonprogressive
profitable	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	nonprofitable
regressing	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	advancing
unnecessary	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	necessary
unrewarding	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	rewarding
unusual	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	commonplace
varied	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	routine

ACCOUNTING AS A COURSE

difficult	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	easy
important	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	unimportant
good	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	bad
haphazard	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	systematic
hazy	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	clear
interesting	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	dull
meaningless	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	meaningful
necessary	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	unnecessary
pleasant	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	unpleasant
simple	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	complex
uninformative	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	informative
unrewarding	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	rewarding
unscholarly	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	scholarly
vague	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	precise
worthless	$\frac{\quad}{3}$	$\frac{\quad}{2}$	$\frac{\quad}{1}$	$\frac{\quad}{0}$	$\frac{\quad}{1}$	$\frac{\quad}{2}$	$\frac{\quad}{3}$	valuable

The Scoring of the Accounting Semantic Differential Questionnaire

An attitude score on the two accounting concepts will be determined for each student taking the attitude tests. One of each pair of the bipolar evaluative adjectives is considered to have a favorable connotation. After administering the test, the scales will be numbered for scoring purposes with the numeral 1-7. The most unfavorable segment of the seven-part scale is given a value of "1," while the most favorable is given a value of "7." All other segments are consecutively numbered. Thus, "4" is the value of the neutral center segment. The student's attitude score is the summation of the values of all the segments he makes.

The bipolar adjective scales are alternated in a random manner so that some scales begin with the favorable adjective on the left and other scales have the favorable adjective on the right.

APPENDIX C

PILOT GROUP RESULTS

An Explanation of the Tables

Tables IX through XI contain information used to calculate the correlation of the two scores from the Accounting Semantic Differential Questionnaires used to elicit attitudes toward two accounting concepts - "accounting as a course" and "accounting as a profession." The questionnaires were given on two consecutive class days to a pilot group of students.

TABLE XI

ATTITUDE SCORES COMPUTED ON THE CONCEPT "ACCOUNTING AS
A COURSE" FOR USE IN THE CALCULATION OF THE
CORRELATION OF TWO SETS OF SCORES ON
THE SAME ATTITUDE TEST

Subject	Pre-test	Post-test
1	78	77
2	92	90
3	89	88
4	67	66
5	66	70
6	82	85
7	80	83
8	88	85
9	75	72
10	89	90
11	91	83
12	83	83
13	90	90
14	79	81
15	71	67
16	86	93
17	86	82
18	75	78
19	96	95
20	73	76
21	80	77
22	75	69
23	76	88
24	80	82
25	81	80
26	70	74
27	86	88
28	85	89
29	88	85
30	80	86
	<u>2507</u>	<u>2528</u>

TABLE XII

ATTITUDE SCORES COMPUTED ON THE CONCEPT "ACCOUNTING AS A
PROFESSION" FOR USE IN THE CALCULATION OF THE
CORRELATION OF TWO SETS OF SCORES ON
THE SAME ATTITUDE TEST

Subject	Pre-test	Post-test
1	77	92
2	91	94
3	95	91
4	80	74
5	74	74
6	91	92
7	86	88
8	95	87
9	76	73
10	98	88
11	90	94
12	93	93
13	90	91
14	86	86
15	85	79
16	88	84
17	83	84
18	56	71
19	95	97
20	68	71
21	76	75
22	66	63
23	96	90
24	92	83
25	82	82
26	80	78
27	79	90
28	90	80
29	85	80
30	84	91
	<u>2507</u>	<u>2528</u>

TABLE XIII
TEST-RETEST RELIABILITY SCORES BOTH
ACCOUNTING CONCEPTS

Concept	Reliability Concept
Accounting as a Course	0.86
Accounting as a Profession	0.78

APPENDIX D

DATA FOR THE ELEVEN VARIABLES USED IN THIS EXPERIMENT

An Explanation of the Data for the Experiment

The information contained in Table XII includes the raw scores of the students on the accounting achievement test and on the concepts of the Accounting Semantic Differential Questionnaire. Table XII contains some additional information. Student ACT scores, grade point averages and an identification of the instructors who taught the students are included, as well as information concerning the scores.

TABLE XIV
DATA FOR THE VARIABLES USED IN THIS EXPERIMENT

UBS	GROUP	ACT	GPA	ACH_PRE	ACH_FUS	ATT_PRE1	ATT_FCS1	ATT_PRE2	ATT_PCS2	ACH_DIF	ATT_DIF1	ATT_DIF2
1	E	6	2.449	0	6	84	75	66	76	6	-9	-10
2	E	15	2.316	7	3	85	83	86	80	-4	-2	-6
3	E	11	1.667	1	5	84	64	86	86	4	0	-2
4	E	17	2.630	8	2	78	88	50	95	-6	10	5
5	E	19	3.636	5	17	93	80	85	81	12	-13	-4
6	E	10	2.797	0	8	73	64	72	78	8	-9	6
7	E	13	2.718	8	14	67	59	85	84	6	-8	-1
8	E	10	2.071	5	1	90	83	88	84	-4	-7	-4
9	E	10	2.564	5	10	95	91	80	85	5	-4	0
10	E	9	2.021	0	10	77	85	80	85	0	12	5
11	E	23	2.938	9	12	31	78	71	66	7	-3	-5
12	E	11	2.169	0	10	81	92	93	92	1	11	-1
13	E	13	2.314	8	1	97	83	96	93	-7	-14	-3
14	E	7	2.346	6	10	87	69	76	71	4	-14	-5
15	E	12	2.379	6	6	91	91	93	91	0	0	-2
16	E	16	2.698	2	0	61	58	70	72	-2	-3	2
17	E	7	1.940	0	1	87	73	84	74	1	-14	-10
18	E	17	2.029	0	0	84	67	79	92	0	-17	14
19	E	15	2.527	1	5	69	76	85	79	4	7	-6
20	E	13	2.064	0	0	76	94	76	85	0	18	9
21	E	14	2.351	0	1	37	85	94	84	-8	-2	-10
22	E	13	2.726	0	2	89	76	84	83	-4	-13	-1
23	E	11	1.969	0	4	86	86	94	91	4	-5	-10
24	E	14	1.789	5	5	95	94	94	91	0	-7	-3
25	E	10	2.430	13	6	84	94	80	88	-4	10	8
26	E	0	1.206	3	10	82	80	83	84	7	-2	1
27	E	10	2.219	0	4	77	84	97	84	4	7	-13
28	E	20	2.000	0	2	76	70	94	77	2	-6	-7
29	E	6	2.254	5	4	70	78	79	80	-1	8	1
30	E	11	2.319	0	2	91	86	94	98	-2	-5	4
31	E	24	2.169	2	0	37	87	93	92	-2	-10	-6
32	E	10	2.105	0	0	77	85	83	91	0	8	8
33	E	4	2.259	2	1	34	83	72	92	-1	-1	20
34	E	10	1.835	1	1	62	69	85	87	0	1	2
35	E	4	2.795	0	5	90	87	96	96	5	-3	0
36	E	12	2.542	5	7	90	98	96	99	1	8	3
37	E	14	2.422	1	5	88	97	96	93	-6	-9	-3
38	E	12	2.310	0	10	74	65	59	49	10	-9	-10
39	E	17	3.111	0	4	91	94	94	95	-4	3	1
40	E	3	1.724	8	1	81	90	96	95	0	9	-1
41	E	7	1.520	1	5	63	69	60	66	0	6	6
42	E	11	2.471	1	5	72	83	82	85	1	5	3
43	E	14	2.243	1	10	99	92	94	91	9	-7	-3
44	E	10	3.173	4	2	72	75	66	79	-2	3	13
45	E	15	1.979	0	6	60	64	74	70	6	4	-4
46	E	14	3.460	4	11	94	83	92	89	7	-11	-3
47	E	21	2.107	4	0	65	70	81	78	-4	5	-5
48	E	11	3.105	10	4	87	86	84	81	-6	-1	-5
49	E	11	2.416	11	2	89	94	93	97	-9	5	4
50	E	8	1.542	2	5	87	83	93	91	7	-4	-2

TABLE XIII (Continued)

Obs	GROUP	ACT	GPA	ACH_PRE	ACH_POS	ATT_PRE1	ATT_PC31	ATT_PRE2	ATT_POS2	ACH_DIF	ATT_DIF1	ATT_DIF2
51		12	3.181	5	5	79	74	94	86	-1	-25	-8
52		11	2.290	4	1	73	80	87	84	-1	-7	-3
53		11	2.300	9	8	83	78	82	68	-1	-5	-14
54		18	3.284	9	13	84	86	82	94	5	2	2
55		10	1.922	2	0	80	83	88	84	-2	3	-4
56		10	3.053	5	2	95	92	96	99	-3	-3	3
57		12	2.788	2	0	71	79	75	81	-2	8	6
58		9	2.500	1	3	54	64	62	76	2	10	14
59		1	2.454	4	2	88	81	72	93	-2	-7	21
60		12	1.537	0	0	82	59	83	70	0	-23	-13
61		10	3.251	8	9	93	87	88	76	1	-6	-12
62		10	2.530	8	10	89	76	87	99	2	-13	12
63		16	3.797	9	9	80	86	77	65	0	6	8
64		10	2.900	1	2	82	63	88	98	1	-14	10
65		7	2.674	0	10	64	83	72	89	10	19	17
66		10	2.500	12	13	83	85	61	77	1	2	-14
67		11	1.713	3	5	86	76	77	78	6	-10	1
68		7	1.425	5	4	73	96	73	98	-1	23	25
69		9	2.214	0	0	92	90	87	88	0	-2	1
70		10	2.504	4	4	92	83	87	81	4	-9	-6
71		10	2.775	4	17	88	85	86	87	13	-3	1
72		10	1.578	1	5	92	82	86	60	4	-10	-26
73		10	2.317	6	10	89	69	92	83	4	-20	-9
74		11	2.617	4	0	89	50	84	69	-4	-39	-15
75		14	2.225	5	4	75	84	89	85	-2	9	-3
76		9	2.247	8	5	96	55	85	85	-3	9	0
77		8	2.010	3	8	82	80	84	88	5	-2	4
78		8	2.302	3	9	77	90	86	80	8	13	-6
79		13	2.430	10	0	76	77	65	69	-10	-1	4
80		9	2.675	12	0	70	83	87	92	-12	13	5
81		12	1.720	6	9	94	84	92	94	0	-10	2
82		15	3.210	0	4	87	65	86	84	6	-2	-2

N=82

List of Variables and Abbreviations

<u>Number</u>	<u>Name</u>	<u>Abbreviations</u>
1	ACT Composite score	ACT
2	Cumulative Grade-Point Average	GPA
3	Accounting Achievement Test-Pretest	ACH-PRE
4	Accounting Achievement Test-Posttest	ACH-POS
5	Accounting Semantic Differential Questionnaire - Accounting as a Course - Pretest	ATT-PRE1
6	Accounting Semantic Differential Questionnaire - Accounting as a Course - Posttest	ATT-POS1
7	Accounting Semantic Differential Questionnaire - Accounting as a Profession - Pretest	ATT-PRE2
8	Accounting Semantic Differential Questionnaire - Accounting as a Profession - Posttest	ATT-POS2
9	Difference in Accounting Achievement Pretest and Posttest	ACH-DIF
10	Difference in Accounting Semantic Differential Questionnaire - Accounting as a Course - Pretest and Posttest	ATT-DIF1
11	Difference in Accounting Semantic differential Questionnaire - Accounting as a Profession - Pretest and Posttest	ATT-DIF2

VITA²

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Doctor of Philosophy

Thesis: A STUDY OF THE EFFECTS OF THE AAA-AICPA DOCTORAL FELLOWSHIP AND VISITING SCHOLARS PROGRAM ON ACCOUNTING STUDENTS AT PREDOMINANTLY MINORITY INSTITUTIONS THAT ARE PARTICIPATING IN THE PROGRAM

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